

# Bronze Age Settlements in the Low Countries



Edited by S. Arnoldussen and H. Fokkens

# Bronze Age settlements in the Low Countries

*edited by*

*Stijn Arnoldussen and Harry Fokkens*

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## Preface

As archaeologists we have become so familiar with large settlement excavations that we often forget that they are a relatively recent phenomenon. The reasons are both administrative and theoretical. The political impetus for fieldwork on this scale came with the recognition that large bodies of important material were being destroyed by commercial development. The magnitude of the problem was only appreciated with the development of open area excavation. As so often, this work was precipitated by practical concerns and in many areas the development of archaeological theory followed afterwards. Here there was a greater interest in investigating settlements and the landscapes of which they formed a part. This work extended from the houses to their fields and even to the relationship between the living and the dead. Now it was possible to examine the settlement sites together with the cemeteries of the same period.

For many years fieldwork in the Netherlands has been a source of inspiration to workers in other countries, and nowhere more so than in Bronze Age studies. Yet there is an irony here, for the results of most projects were published in Dutch and in journals with a restricted circulation. That meant that a few projects became well known at the expense of many others, with the inevitable result that prehistorians elsewhere in Europe were working with a limited sample of the information that was actually available. As the pace of fieldwork increased, the same was true of workers in the Netherlands themselves. It is a predicament that archaeologists share in every region. The work is undertaken to a high standard and often on a large scale, but it does not have the influence it deserves because the results remain largely unknown. Having recently prepared a book on prehistoric Britain and Ireland, I know that the problem is not confined to the Low Countries. It means that accounts of European prehistory are frequently ill-informed and out of date, but this sometimes happens through no fault of their authors.

What is required is better dissemination of information and a closer integration between fieldwork and academic research. In Britain that possibility seems remote, but this book provides a model of what can be achieved by discussion, debate (and proper funding for research). Not only does it present the results of a number of ambitious and accomplished excavations, it also reflects on their wider significance in a series of papers which set a new standard for settlement archaeology anywhere in Europe. What it tells us about the Bronze Age is important and original. What it says about the future of archaeological research has implications for everyone in the discipline.

Whatever your specialism, do read it and take its lessons to heart.

Richard Bradley  
University of Reading

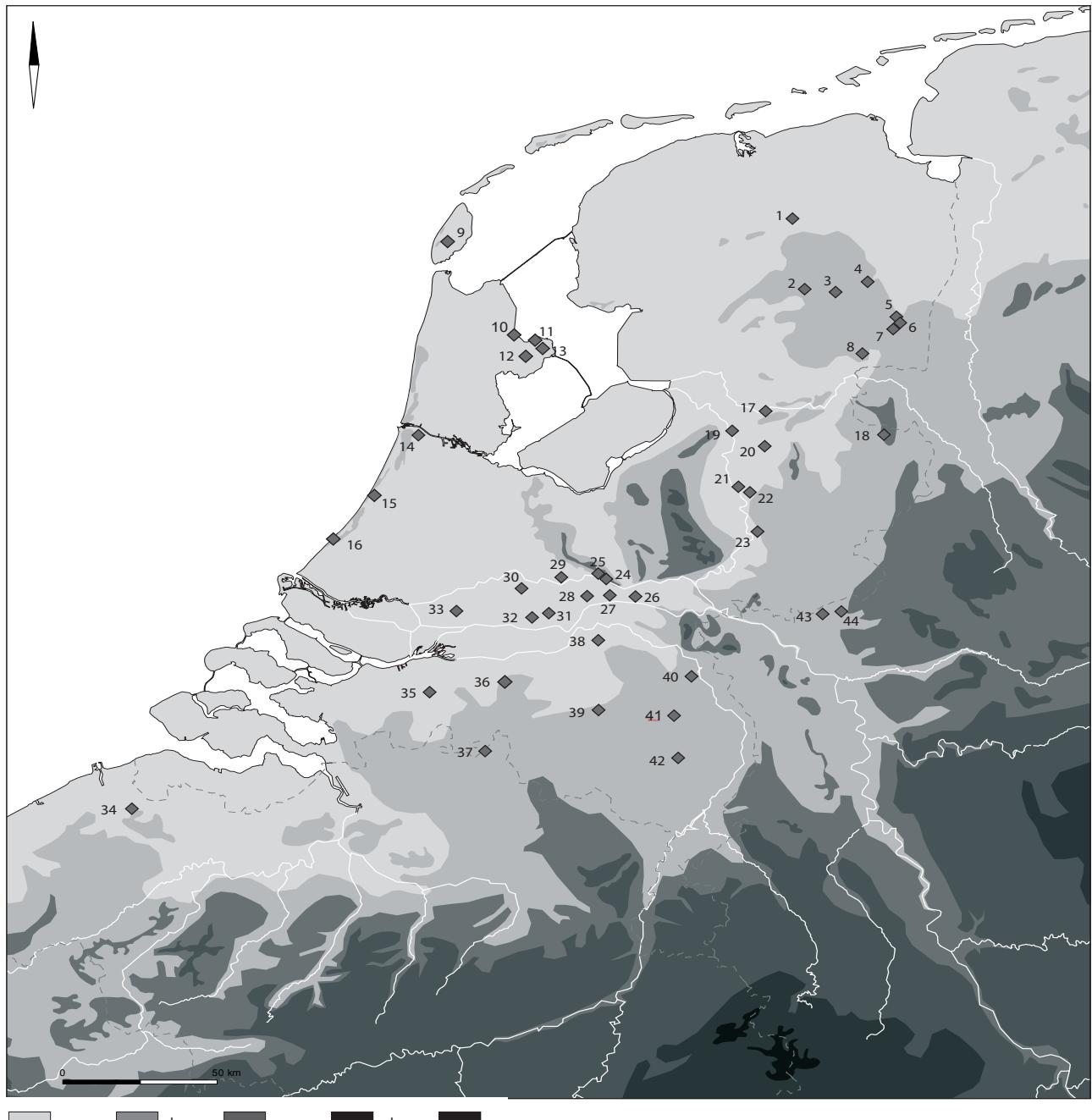


Fig. I The main places mentioned in the text. Legend: a: 5–10 m; b: 10–40 m; c: 40–80 m; d: 80–400 m; e: >600 m

1	Roden	12	Hoogkarspel	24	Rhenen	35	Breda
2	Hijken	13	Bovenkarspel	25	Elst	36	Loon op Zand
3	Elp	14	Velsen	26	Dodewaard	37	Weelde (B)
4	Borger	15	Noordwijk	27	Kesteren-Lienden	38	Oss
5	Emmen / Emmerhout	16	Den Haag	28	Tiel-Medel	39	Nijnsel
6	Angelslo	17	Dalserf / Regteren	29	Wijk bij Duurstede	40	Boxmeer
7	Noordbarge	18	Vasse	30	Zijderveld	41	Boekel
8	Dalen	19	Zwolle	31	Geldermalsen - de	42	Someren
9	Texel - Den Burg	20	Raalte	32	Bogen	43	Bocholt (D)
10	Medemblik	21	Deventer	33	Rumpt - Eigenblok	44	Rhede (D)
11	Andijk	22	Colmschate	34	Molenaarsgraaf		
		23	Zutphen		Maldegem (B)		

# 1 Towards new models

*Harry Fokkens and Stijn Arnoldussen*

## Introduction

Bronze Age settlement research in the Netherlands has a long tradition. Since the sixties of the last century many new data were gathered in almost the entire country. After the Second World War many building projects were initiated and roads had to be converted into highways to accommodate the growing traffic. In the context of these developments several excavations took place, some even on a large-scale, like the excavations north of Bovenkarspel in West-Friesland (Bakker *et al.* 1977; IJzereef and Van Regteren-Altena 1991) and Angelso-Emmerhout in Drenthe (cf. Kooi, this volume). The Universities of Groningen and Amsterdam played an important role in these large-scale projects, together with the State Service for Archaeological Investigations (former ROB, now RACM).

Due to the enormous work pressure, many of these excavations were only preliminary published, and of those but a few in English, French or German and virtually none in international journals. Only the final publication of Elp (Waterbolk 1964) and Molenaarsgraaf (Louwe Kooijmans 1974), and the preliminary reports of Nijnsel (Beex and Hulst 1968) and Zijderveld (Hulst 1975) appeared in English in journals that had an international distribution.

This publication problem not only resulted in a lack of knowledge dissemination on the international level, but on the national as well. Especially in the late nineteen nineties, the new generation of archaeologists that started to do research experienced this as a problem. Hence a small conference was organised in Leiden (1989) that called together everyone who had ever excavated Bronze Age settlement site remains with the aim to present their data to a larger scientific audience. The conference was a success and nearly all authors agreed to publish their data in

the conference proceedings (Fokkens and Roymans 1991). This publication, known as the 'NAR 13' (Nederlandse Archeologische Rapporten 13) was widely distributed and well-cited, even internationally although it was published in Dutch. It was clear that many people were eager to hear more about the Bronze Age excavations in the Low Countries.

For some time NAR 13 was the standard, but the last decennium brought a lot of changes. Due to the new Malta legislation, following the Valetta convention signed by European Union members in 1988, many research projects were initiated in advance of the building of roads, railways and housing estates. Figure 1.1 shows that there was a steep increase in the discovery of new Bronze Age sites in the last two decades. In the course of these projects many new data on Bronze Age settlement sites and burials and the relation between the two were generated, now fortunately generally resulting in full publications, be it still in Dutch and in very small editions.

Nonetheless, new problems arise: first it has become clear that a standard and a methodology is lacking by which researchers, some inexperienced in Bronze Age research, can judge their data. Second, syntheses are lacking. Third the data is – even if published in full reports – inaccessible to an international scientific public.

To tackle a number of these problems a Leiden based team under direction of the first author started a research program in 2001 with the title 'Living in a dynamic (cultural) landscape: The Bronze Age in the Dutch central river area'. This research programme aims to investigate and synthesise the available data on the Bronze Age cultural landscape in the delta of the rivers Rhine and the Meuse in the Low Countries. It was part of the Netherlands Science Foundation (NWO) framework 'The Malta Harvest' which

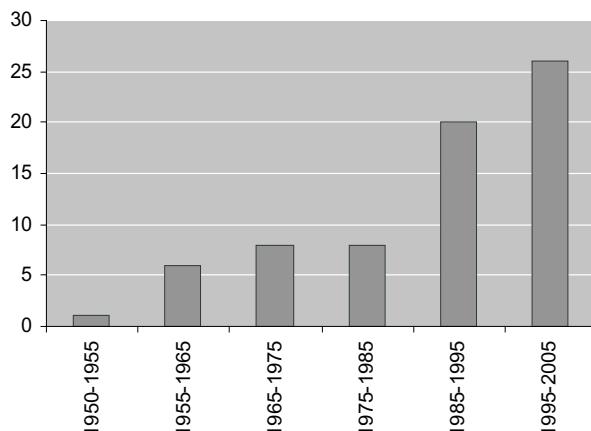


Fig. 1.1 Number of Bronze Age sites discovered per decennium

funded programmes that aimed at synthesising the results of research generated under the new Malta legislation, partly through the integration with older research.

In this project we set the Dutch central river area as our study area because in the last years a number of large archaeological projects had been carried out by different commercial organisations in advance of the construction of the Betuwe railroad. The results were fully published, in Dutch language books, but never synthesised. The scientific potential of these excavations had thus not been fully mined yet. The project explicitly targeted this potential, whilst at the same time reanalysis of a few older excavations was undertaken. The second author, took on the job of comparing the results of the sites and to compare them with the data from Bronze Age settlement sites both within, and outside the river area (Arnoldussen and Fokkens, this volume).

In order to make our data more knowledgeable and to discuss interpretations, the editors of the present volume organised a conference in Leiden, in October 2005. It had two main goals: the primary objective was to bring data on Bronze Age settlement sites to the light that had hitherto only been published in preliminary, brief or less well-known reports. The second objective was to bring together an audience of archaeologists working with commercial excavation companies, local amateur archaeologists as well as archaeologists with an academic position in order to discuss and disseminate the current state of knowledge on Bronze Age settlements from the Low Countries. The present volume is the result of that conference, but not a mere collection of conference papers. They are supplemented with contributions from authors not present at the conference. We focussed on the sites where one or more Bronze Age house plans had been discovered and seemed not to have received the attention yet that these for various reasons deserved. The process of editing allowed discussing the presented data with the authors in order to arrive at a more common standard of

terminology and methodology. This does not mean that all plans and argumentations confer to our ideas, but that we encouraged the authors to become aware of possible interpretational problems and sometimes urged them to formulate their conclusions with the necessary criticism and reflection. Therefore we are confident to say that the present book, even if it is a multi-author volume, is an authoritative presentation of the Dutch data on Bronze Age settlement sites.

In this paper we want to summarise some of the interpretations presently possible and reflect on the existing models of settlement structure and organisation. In a second article (chapter 2) we summarise the data on structures and settlements and present a few conclusions that can be used for further research in the field.

## Earlier syntheses

Despite large numbers of known settlement sites from nearly all areas of the Low Countries (Arnoldussen and Fokkens, this volume p. 30), not many syntheses have been produced which characterized their nature and dynamics. Exceptions are Butler's *Nederland in de Bronstijd* (1969), Fokkens' and Roymans' *Nederzettingen uit de bronstijd en de vroege ijzertijd in de Lage Landen* (1991), Theunissen's *Midden-bronstijdsamenlevingen in de Lage Landen* (1999) and Fokkens' 'The periodisation of the Dutch Bronze Age: a critical review' (2001). Yet by and large, Bronze Age settlement sites are – when encountered and excavated – taken for granted. A brief overview of the main lines of interpretation of Dutch Bronze Age settlements highlights the most notable exceptions.

### ***Nederland in de Bronstijd* (Butler 1969)**

The first phase of Bronze Age settlement research started in 1955 with the recognition of the first Bronze Age

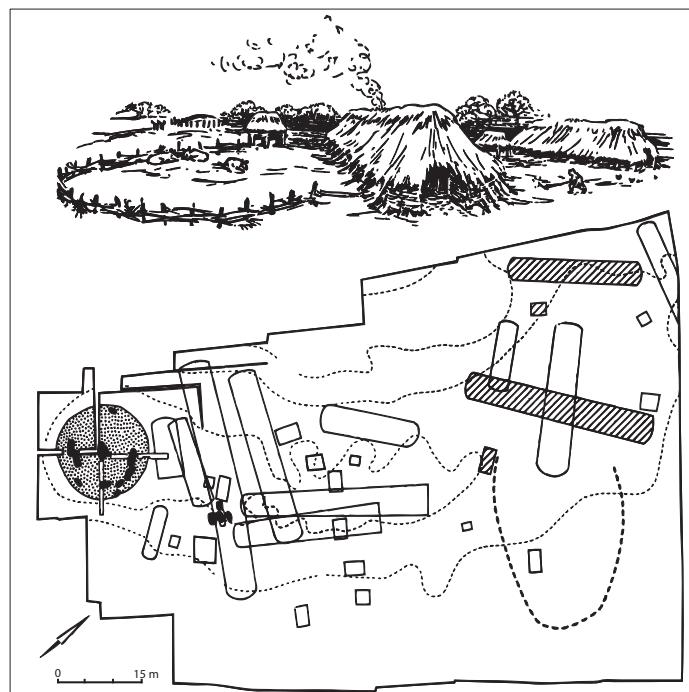


Fig. 1.2 The interpretation of Elp as it was published by Butler (1969) after the interpretation by Waterbolk (1964)

houses at Deventer (Modderman 1955; Arnoldussen and Fokkens, this volume, fig. 2.9), and the excavations at Elp in the early sixties (Waterbolk 1964; 1987). When Butler wrote his famous '*Nederland in de Bronstijd*' in 1969, only the settlements of Elp and Angelslo-Emmerhout figured. Through his book Waterbolk's interpretation of Elp (Waterbolk 1964 revised in 1987) got firm roots. The reconstruction (Fig. 1.2) showed two contemporary farms, a large house (up to 40 m) and a smaller one (18 m) each with one or two outbuildings (granaries, in Dutch called 'spiekers'), a cattle pen and a barrow located in the vicinity. According to Butler and Waterbolk the settlement features recovered at Elp represented one farmstead with two house plans that in the course of 500 years was rebuilt several times in approximately the same location. In his 1987 reconsideration of the data, Waterbolk stated that in his view the farms were abandoned after a generation of use and the farmstead was replaced to another location to return after yet another one or two generations (Butler 1969, 66; Waterbolk 1987).

The settlement of Angelslo-Emmerhout had not been published yet in 1969 (and not even today), but Butler summarized some of its interesting features, one of them being extremely long houses (65 to 80 m in length). He suggested that the latter might have been built in several separate phases (1969, 70), but that the first certainly was conceived as one coherent plan. This conclusion has seen much debate and finally has been refuted by Kooi (this volume), who interprets both as reflecting a multitude of construction phases.

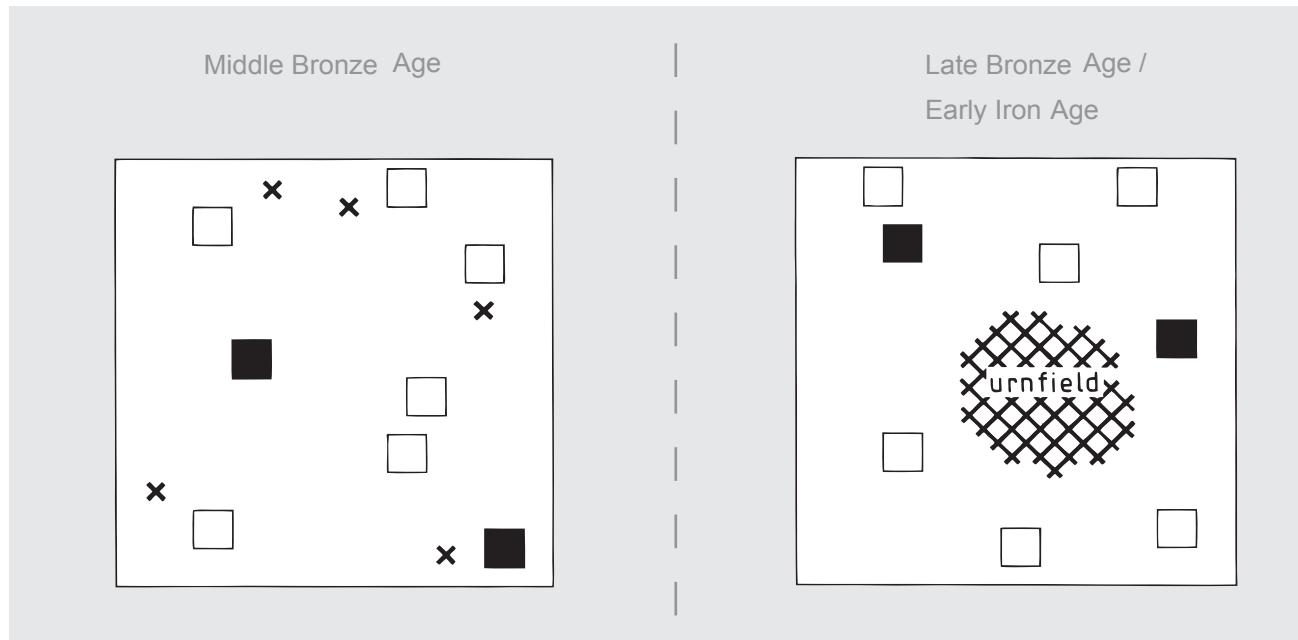
### ***Nederzettingen uit de bronstijd en de vroege ijzertijd (Fokkens and Roymans 1991)***

Another overview appeared some 20 years later (Fokkens and Roymans 1991). In their introductory and summarising article, Roymans and Fokkens (1991) recapitulated the existing views on settlement dynamics, of which many never had been committed to paper before, and presented the result in a simple model (Fig. 1.3). New in this model was the fact that they incorporated the relation of settlement sites to burials.

Based primarily on the excavations at Elp, Angelslo-Emmerhout and Bovenkarspel, the idea was that in the Middle Bronze Age farmsteads shifted their location. The burial sites more or less shifted with these because new barrows were located in the vicinity of new house locations. Only in West-Friesland several farms were considered to have existed within a small region simultaneously, forming a kind of hamlet, but elsewhere farms were thought to have;

‘.... a diffuse spatial structure: the yards lay dispersed and are generally single-phased.’ (Roymans and Fokkens 1991, 11, our translation).

The idea that farmsteads ‘wandered’ around the landscape later gained momentum by the work of Schinkel (1994; 1998), who related it to earlier interpretations of Iron Age and Roman period settlement sites in the northern Netherlands and Germany (cf. Waterbolk 1982, 134; 1987, 213; Kossack *et al.* 1984, 20; Haarnagel and Schmid 1984, 216). The limited durability of the timbers used for the



Contemporary farmsteads (filled squares) which periodically (generationally) change location. No fixed funerary site; crosses indicate some isolated barrows. Open squares indicate farmsteads from other phases.

Contemporary farmsteads (filled squares) which periodically (generationally) change location, while the funerary location remains fixed. Open squares indicate farmsteads from other phases.

*Fig. 1.3 Model by Roymans and Fokkens (1991, fig. 7) for the distribution of settlements and the relation with burial sites*

construction of the houses was seen as the main incentive behind this system of shifting habitation (cf. IJzereef and Van Regteren-Altena 1991, 74; Roymans and Fokkens 1991, 10).

In the Late Bronze Age several changes were seen to occur: the farmsteads still wandered, but from the Late Bronze Age onwards cemeteries (urnfields) remained fixed at the same location (Roymans and Fokkens 1991, 12). This contrast was also considered to be visible in the location of arable fields: in the Middle Bronze Age these were (implicitly) considered to be less constant and over long periods shifting with the centres of gravity of settlements, but from the Late Bronze Age onwards the large arable complexes of the Celtic fields developed. Roymans and Kortlang (1999, 38–38, 50–52) and Gerritsen (2003) later used these contrasts to propose that in the Late Bronze Age local communities started to use cemeteries as an important element in the construction of their identity.

Thus, based on the open, unfortified character of the Dutch Bronze Age settlement sites in Drenthe and later in the remainder of the Netherlands as well, small-scale, peaceful and egalitarian communities were reconstructed (cf. Roymans and Fokkens 1991, 11 ff.). Although the burials seemed to show indications for a hierarchical structure of the society (cf. Butler 1969, 177 ff.), the settlements were not considered to show a similar hierarchy (but see IJzereef and Van Regteren-Altena 1991, 78).

The 1991 overview confirmed and strengthened the existing view, advanced by Butler (1969, 67), that in the

Middle Bronze Age a new tradition of farm building started: that of the three-aisled 'byre-house' ('Wohnstallhaus' (German) or 'woonstalhuis' (Dutch)). Butler stresses that this tradition continued as 'the traditional farm type of the North sea area in northwestern Germany and the Netherlands north of the central river area (the so called Frisian and Saxon farm; Butler 1969, 67, our translation). In 1991 it had become clear that not only in the areas north of the Rhine this type was the dominant type, but in West-Friesland, the river area and the southern Netherlands as well. Roymans and Fokkens summarised the data in a schematic survey that let the three-aisled tradition start around 1750 BC, at the beginning of the Dutch Middle Bronze Age-A and signalled the transition to an entirely new tradition after 900 BC.

They took the apparent invisibility of the byres in the southern farms for granted. The comparable lengths of the houses then known prompted them to assume that even if stalls were invisible in the south, they still had been present there as well. The possible stall partitions of the Loon-op-Zand house were used as supporting evidence (Roymans and Hiddink 1991, 114). Hence the tradition of mixed farming, with the longhouse with a byre included as its symbol, was advocated to have started around 1750 BC, following a two-aisled Neolithic house tradition without stalls. The importance of cattle for the economy and the winter stalling of cattle was proposed as a possible explanation for the new tradition in farm building (Roymans and Fokkens 1991, 8).



Fig. 1.4 Large scale excavations at Oss-Mikkeldonk (A: area Mikkeldonk; B: area Suikerkamp) surveying an area of c. 18 ha. Indicated are Bronze Age house plans (a), granaries (b), wells (c), fences (d) (after Fokkens 2005b, fig. 18.22)

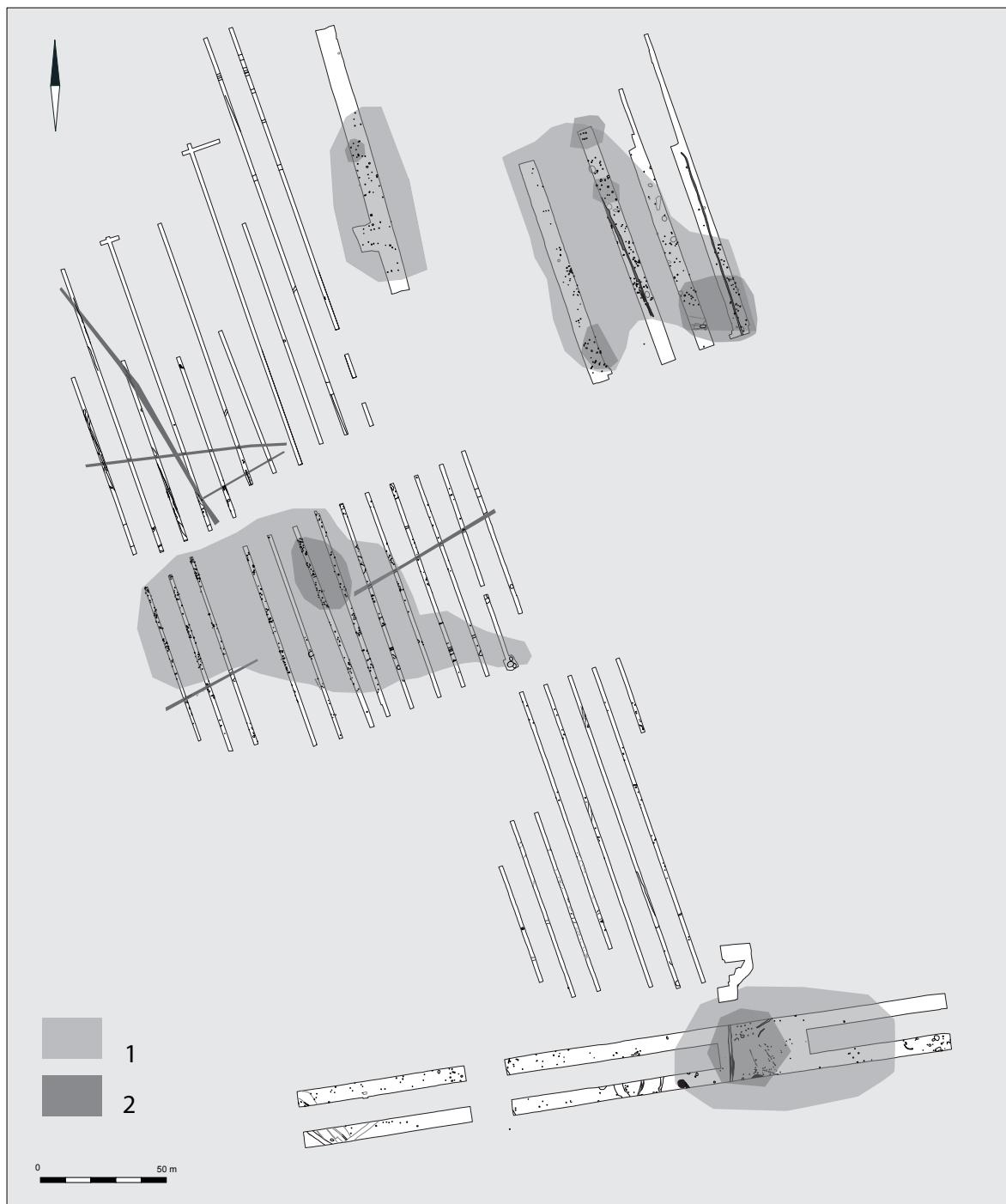


Fig. 1.5A Prospecting trenches (1.5 m wide, in the ne and the s 5 m wide, show dense distributions of features (1), probable structures (2) of the Iron Age and the Bronze Age, and a ditch system of the Roman period

Presently it has become clear that the classical byre-house type of the north as advanced by Butler (1969), is indeed in its specific form restricted to the Nordic World (cf. Harsema 1993, 107; Willroth 2003, 114; Arnoldussen in prep.) and is only visible from the 15th century BC onwards (Bourgeois and Arnoldussen 2006; Arnoldussen and Fontijn 2007; Arnoldussen in prep.). We will discuss this issue in more detail later.

Since 1991 much has happened, both in terms of settlement research proper as well in theoretical approaches to the settled landscape. This chapter predominantly deals with the second issue, chapter 2 (Arnoldussen and Fokkens, this volume) with the first.

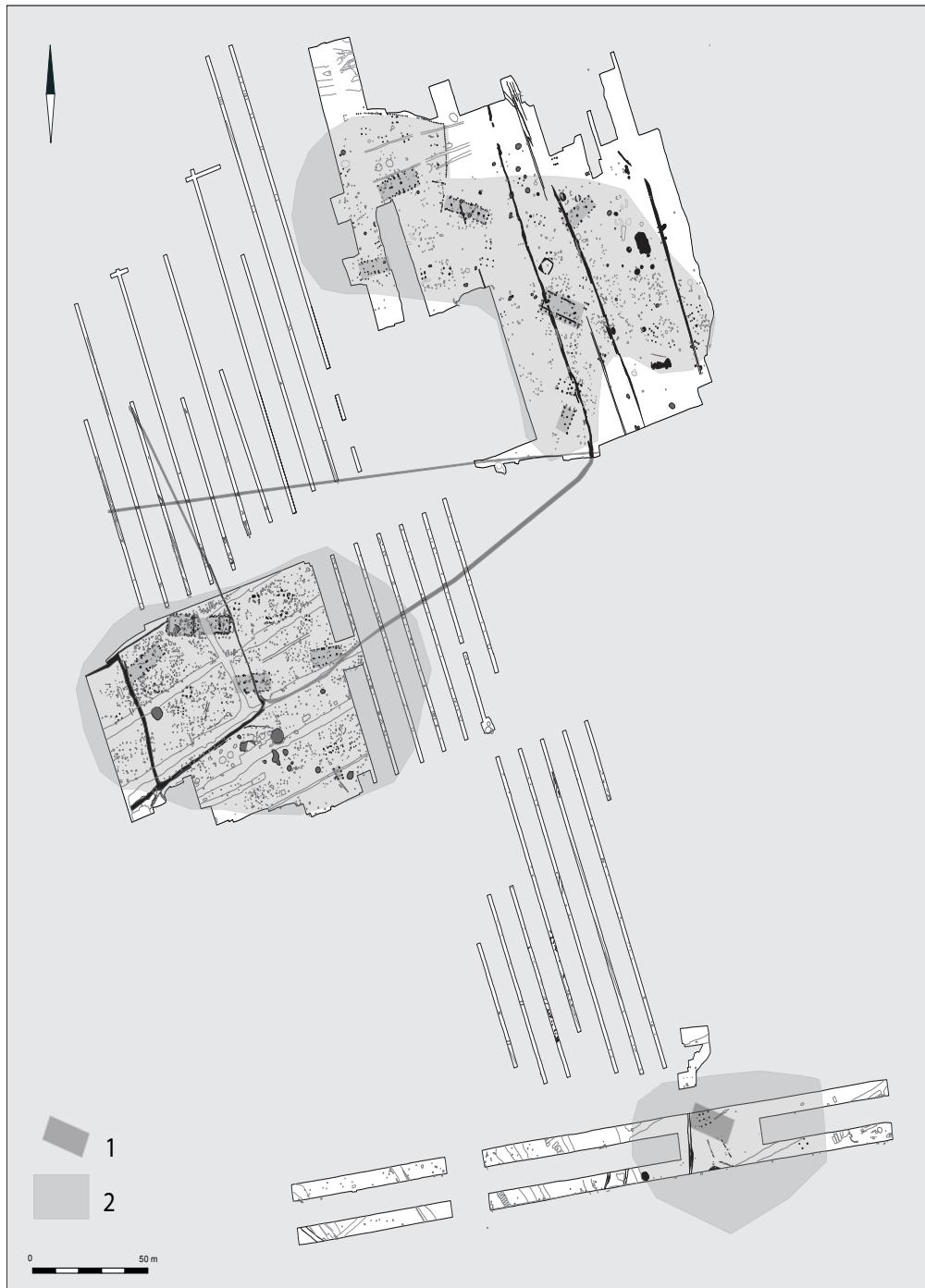


Fig 1.5B The areas densest with features have been excavated. In all 11 houses from the Early Iron Age until the Late Iron Age were uncovered (2) and the main settled areas could be established (1). Outside this area an extensive land parcelling system of the Roman Period (zw-ne) is traceable and a ditch system of the Late Iron Age (w-e)

## New themes in settlement research

In the 1991 article Roymans and Fokkens held a plea for a more holistic approach (1991, 17), i.e. for an integration of settlement research with that of burial sites and deposition locations. Gradually this approach started to become known as archaeology of the cultural landscape, as opposed to

settlement archaeology. In the Low Countries the NWO funded project Settlement and Landscape in the Meuse-Demer-Scheldt area with close cooperation between the University of Amsterdam (Theuws), the Free University of Amsterdam (Roymans) and the University of Leiden (Fokkens) set the agenda in that respect. Within the framework of that project, concepts were developed that are

now more or less standard in the Low Countries. Concepts like archaeology of the micro-region, the local community, biography of the landscape, ancestral landscapes, the life cycle model for settlement displacement have been developed within the context of the Meuse-Demer-Scheldt Project (cf. Fokkens 1996; Roymans 1996; Gerritsen 2003).

### ***The landscape approach and micro-regional research***

Until the nineteen nineties settlement research focussed on sites and especially of the sites of farms. The research methods were more or less instrumental in that approach. Generally settlement sites were discovered by accident. Therefore generally only rescue excavations were possible. In some occasions, like for instance in West-Friesland (Bovenkarspel, Hoogkarspel) and Drenthe (Angelslo-Emmerhout) and later in Oss, large-scale excavations were undertaken, uncovering substantial areas of 17 to over 50 hectares (Fig. 1.4).

But even within these larger research projects it often was impossible to make inferences on the settlement structure or settlement system, to use outdated terminology in terms of content, but which still is useful in terms of scale (Flannery 1976). The results of these larger projects were unique, because they showed for the first time the coherence between farms and clusters of farms and even between farms and cemeteries. Combined with the time depth of the excavated remains in such research areas, the potential for scientific research of the settled area clearly is enormous. It was realised that continued research in a relatively restricted region had a high potential and therefore micro-regional research became a strategy for doing landscape archaeology (Fokkens 1996; Gerritsen 2003; Roymans 1996).

Landscape archaeology, in several shapes and contexts, has been a hallmark of archaeology of the Low Countries for a long time. For decennia H. T. Waterbolk stressed the importance of the regional landscape for the cultural identity of a group. His research focussed, through the analysis of prehistoric and historic data, on the development of local groups with certain landscape compartments like for instance were present in the northern Netherlands (Waterbolk 1982; 1990; Slofstra 1994, 30).

In the nineteen nineties, the concept of landscape archaeology developed a different content both in the Netherlands and elsewhere. The term 'cultural landscape' now features in virtually every book and research proposal, but with a plethora of definitions (cf. Hidding *et al.* 2001). In a more down to earth meaning, very often used in commercial archaeology, it stands for an approach that incorporates all elements of the inhabited landscape, not only settlements, but also cemeteries and other ritual sites. In other contexts the archaeology of the cultural landscape means cultural perception and experience of the landscape: 'meanings attributed to the landscape within (pre)historic

societies and (...) the ways in which past experiences may be anchored in the landscape' (Bazelmans *et al.* 1999, 6). In a call for papers on this subject for the first issue of *Archaeological Dialogues* in 1994, the authors stay close to Ingolds 'dwelling perspective' according to which 'the landscape is constituted as an enduring record of – and testimony to – the lives and works of past generations who have dwelt within it, and in doing so, have left there something of themselves.' (Ingold 1993, 152). This focus on the incorporation of elements of the past in contemporaneous landscapes also strongly features in Roymans' concept of 'cultural biography' (1995), which presently is extremely popular in the Low Countries but by its popularity is in risk of being degenerated somewhat to mean only 'occupation history' of a particular cultural area. Such use does no justice to what Roymans intended with the concept, or to the seminal work of Kopytoff (1986) on which it is based.

To our view, archaeology of the cultural landscape means a kind of archaeology that tries to investigate the ways in which people have structured the landscape in which they dwelt and gave it meaning according their cosmology. Consequently, in practice such landscape archaeology involves the research of the structure of, as well as the coherence between, settlements, the surrounding land, cemeteries and ritual places. The latter may very well even be unaltered places in the landscape (cf. Bradley 2000; Fontijn 2007).

From this perspective, landscape archaeology implies also a different research strategy, which is becoming increasingly embedded in archaeological practice. A strategy that calls for integral prospection of the landscape, not only focussing on settlement and funerary sites, but also on the areas that normally would not be visible as sites because they have a low archaeological visibility. Ideally this means prospecting with survey trenches like is the practice in France, for instance. There large development areas are tested with a 'sondage à cinq pourcent' (5 % trial trenches) by means of 1–2 m wide trenches which reveal any density of archaeological traces or the indeed their absence even in cases of low archaeological visibility (Fig. 1.5A, B).

### ***Ancestors and local communities***

With the increased interest in the inhabited landscape as a social phenomenon and in the relation between settlements, barrows and other ritual places, new lines of research have been developed. First the importance of ancestors for the identity of regional groups was realised, second recent reanalysis of the archaeological data show that the relation between barrows and settlements is not as straightforward as it once seemed.

To start with the latter, it is now evident that the 1991 model presented by Roymans and Fokkens (1991, fig. 7; Fig. 1.3) suggests a too direct relation between barrows and settlements (cf. Bourgeois and Fontijn, this volume).

The term ‘family barrow’ as the general indication for the Bronze Age barrow with secondary interments adds to the image that barrows are cemeteries belonging to one or two farmsteads (see for instance Drenth and Lohof 2005, 451).

However, scrupulous research of the available data by Arnoldussen for the settlements and Bourgeois for the burial evidence has revealed that primary burials under barrows – if dates are available – date to the period before 1500 BC, whereas the farms date from after 1500 BC (Bourgeois and Arnoldussen 2006; Arnoldussen and Fontijn 2007). This does imply that the inhabitants of the farm never could have been buried underneath a barrow. Nevertheless, if we observe that several farms are located in the vicinity of barrows, or even incorporate a barrow in their farm yards, like for instance at De Bogen, Eigenblok, Elp, Hoogkarspel and Bovenkarspel, the presence of an older or ancestral barrow may have been one of the pull factors for MBA-B house locations (Harsema 1982, 156; Kolen 2005, 45; Fokkens 2005c, 79; Fontijn and Bourgeois, this volume).

This observation brings the importance of ancestors for farming communities into focus. Many authors have stressed the importance of ancestors for farming communities. In societies without land tenure the ancestors are often seen as the original owners and protectors of the land (e.g. Meillassoux 1972; Saxe 1970). Among many authors, Mary Helms too stresses the importance of ancestors in relation to the origins of the ‘House’. She describes this concept in the sense of Lévi-Strauss as referring

‘not to buildings per se, but to a bounded social entity, a corporate body, or a core group of persons related or incorporated by various forms of real or fictive ties of kinship or alliance and possessing an estate or domain containing of material or immaterial (including supernaturally derived) wealth or “honours”.....’ (Helms 1998, 15).

The house in its material form often is at the heart of the House and as such may even become a ‘veritable microcosm reflecting in its smallest details an image of the universe and of the whole system of social relations (Lévi-Strauss 1982, 174–187; 1987, 150–152, cited in Helms 1988, 15). Helms furthermore makes an important distinction between ancestors related to the ‘emergent’ House origins ‘in which ancestors are still directly linked to the House from which they derived’ (and therefore emergent from the House) and ancestors that refer to cosmological first principles or creational origins and therefore precede the House (Helms 1998, 38). The distinction is important because both categories are often linked to different places and may have different forms. Ancestors related to first-principle origins may take the form of totems, animals or trees and may be related to natural places or intangible phenomena (Helms 1998, 39–42). Emergent ‘affinal’ House ancestors may ‘spatially situated’ (Helms 1998, 42), implying that they can be located in places near the material manifestations of the House.

From that perspective the relation between barrows and farms becomes an ideological one anchored in the cosmology of a social group, or a local community as it is frequently labelled in an archaeological context in the Low Countries. The latter concept is defined in more descriptive terms as a community of people living together in the same (micro)-region, burying the dead in the same cemetery and worshipping the same ritual places, in other words, sharing an identity (Fokkens 1999; 2004; Gerritsen 2003, 125). Referring to Ingold (1986) and De Coppel (1985), Gerritsen stresses the reciprocal relationships between a local community and the land of which ultimately the ancestors can be seen as the original workers and owners. The social ties created by the construction of, and the (conceptual) relations between barrows and houses therefore are meaningful as a means of creating and sustaining the identity of local groups, not only in the Late Bronze Age and Early Iron Age (Gerritsen 2003; Roymans and Kortlang 1999), but also in the Middle Bronze Age and in the Late Neolithic (Fokkens 1998; 2003).

The appreciation of the importance of ancestors for local communities has generated a renewed interest in landscapes of the dead. In Belgium Bourgeois’ aerial photography programme has already led to astonishing results, increasing the known number of barrows from almost nil to over a thousand (Ampe *et al.* 1996, Bourgeois and Cheretté, *et al.* 2003). In the Netherlands, new research has first focussed on barrow cemeteries, for instance of Totterfout-Halve Mijl (Theunissen 1999), and Oss-Vorstengraf/Oss-Zevenbergen (Fokkens and Jansen 2004; Fokkens *et al.* 2006.) but now is gaining momentum in a broader oriented barrow project (Bourgeois and Fontijn 2007). It is obvious now that – like settlement research – burial analysis too has traditionally assumed a too modern view on the meanings of treatment of death and the dead. A more holistic perspective is needed which brings to the fore the cosmological aspects of burial ritual (cf. Artelius and Svanberg 2005, 8) and its meaning as both the end and the beginning of life (cf. Bloch and Parry 1989, 8). The notion of the cyclical character of life brings together the living and the dead, settlement and cemetery, but also brings depositional practices into the analysis. Fontijn has demonstrated how depositions, settlements and burial gifts are related and how they could be connected to life cycles of persons and interpreted as exchanges with the supernatural and the ancestors (2003, 146, 187, fig. 11.3, fig. 12.3). This intriguing awareness that all dimensions of Bronze Age life that were hitherto often studied in separation can and should be combined in coherence will have to structure future research both in research aims and methods.

### ***Unsettled settlements, houses and households***

We already discussed how the Roymans and Fokkens model presumed a settlement structure of dispersed, solitary farmsteads that were rebuilt on a different spot every 25 to 30 years. The duration of a single settlement phase was

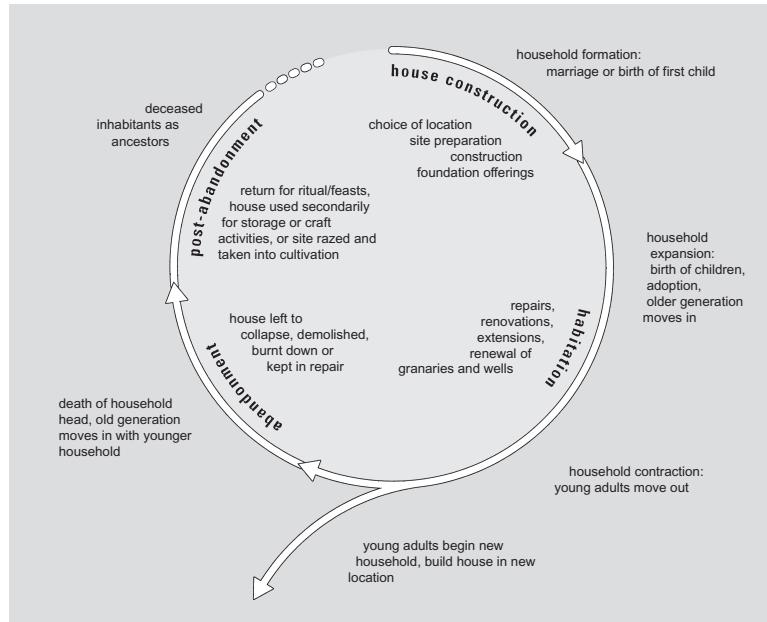


Fig. 1.6 Diagram showing a potential biography of a single-phase farmstead, based on the assumption that the life span of a house corresponded to the life cycle of a household (from Gerritsen 2003, fig. 3.1)

explicitly related to durability of wood (Roymans and Fokkens 1991, 10). The ‘wandering’ distance was supposed to be not more than a few hundred meters only. Implicitly the displacement of the houses was seen as practical, because that meant that the construction of the new farm could be carried out from the old farm and that the old farm or what was left of it – after abandonment – could be used for secondary purposes. Many researchers assumed – although virtually no one committed this idea to paper – that the farmyard after abandonment was immediately used as arable because of the nutrient-enriched soil.

One of the most cited discussions of wandering farmsteads was the Oss-Ussen study by Schinkel (1994; 1998) who coined the phrase ‘unsettled settlements’. Schinkel’s approach was to a large extent descriptive, because a practical mechanism (wood decay) was thought to be instrumental in the wandering of the farmsteads. As an alternative, Gerritsen presented a socio-cosmological model (1999, 2003). Gerritsen adopts a basically Lévi-Straussian approach to the House (cf. the citation above; Gerritsen 2003, 34) and to houses, much like to several contributions in Carsten and Hugh-Jones’ seminal *About the House* (1995). Gerritsen (2003, fig. 3.1; Fig. 1.6) draws a parallel between the biographies of the house and its inhabitants. It is an attractive model that lets the building of a house start with household formation (marriage, birth of first child), extension and rebuilding with comparable phases of household cycle, and abandonment when household cycle comes to an end with the death of the household founders. Since the biographies of the house and the household coincide, it is logical that even after abandonment the place of the farm is remembered and used for practical reasons and

rituals related to the House. It also offers an interpretative framework for abandonment rituals and deposits that indeed are known from archaeological contexts (Gerritsen 2003; Van den Broeke 2002; van Hoof 2002).

The attractiveness of the model has led to general and rather uncritical acceptance in the archaeology of the Low Countries up to the point that it is cited as a standard interpretation in commercial reports. However, the model has hardly been tested yet. Several hypotheses about the structuring of the archaeological record could be derived from it. For instance, Fokkens (1997, 1999, 2003) has argued that the often large Middle Bronze Age farms (25 m +) were inhabited by households consisting of extended families, whereas the much smaller Iron Age house was the home of a single family household. In Fokkens’ view that may be one of the reasons why so many more houses of the Early Iron Age are known compared to houses of the Middle Bronze Age. If this hypothesis is correct, Gerritsen’s model would predict a longer use-life of Bronze Age houses and more extensions and rebuilding phases than in Iron Age houses. Arnoldussen indeed observes both longer use and frequent rebuilding or repairs in Middle Bronze Age houses (Arnoldussen and Fokkens, this volume), but that neither proves nor disproves either of the models. More research is needed and special attention may be necessary for rituals of abandonment, which incidentally is indicated by depositions (Arnoldussen in prep.).

Implicitly the relatively high mobility of the farmstead seems to indicate that there was no perception of ownership of or connectedness with a particular spot or locale of the landscape. On the other hand, there are several examples of farmsteads ‘returning’ to an abandoned farmyard,

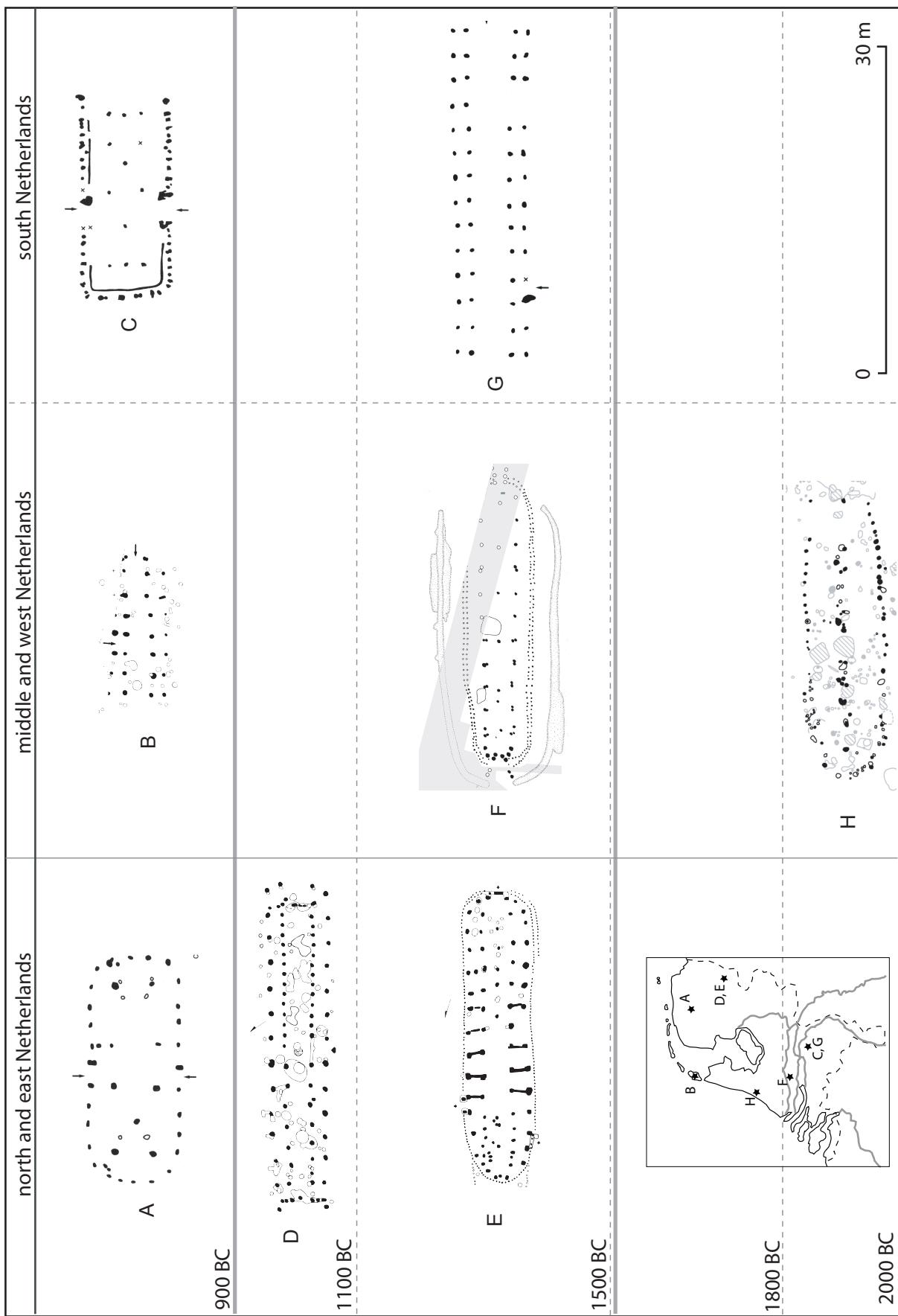


Fig. 1.7 Survey of the development of houses in the Low Countries. A: Een, B: Texel-Den Burg, C, G: Oss, D, E: Angelo, F: Zijderweld, H: Noordwijk

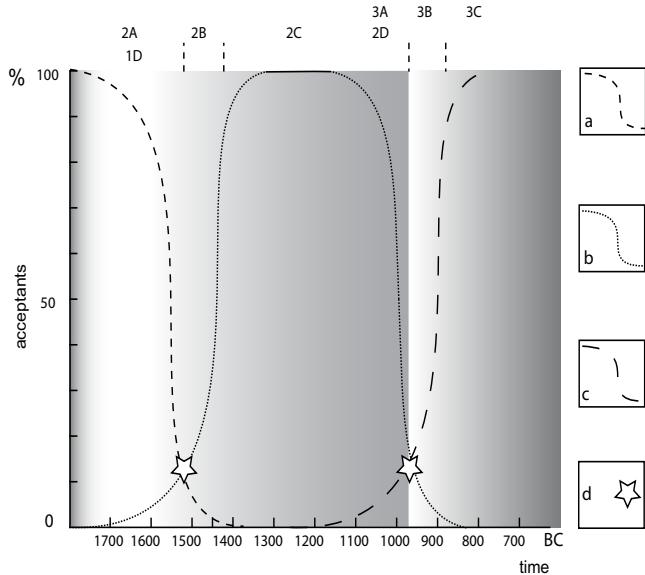


Fig. 1.8

*Model for the introduction of new house plans. 1D indicates the period that the two-aisled house plan still exists. At the end of that period (2A) the three-aisled plan develops, but apparently is not visible yet archaeologically. Only when the critical mass is reached (star) the development become 'revolutionary' fast and visible. Its momentum slows down in phase 2C and this type of building disappears in phase 2D. In that period a new development takes shape (small three aisled plans with roof bearing construction outside the wall) following the same pattern of innovation*

even after more than a hundred years of apparent disuse (Fokkens 1991; 2005; Waterbolk 1987). Abandonment therefore probably did not mean total elimination from the collective memory of the local community. Through oral history, ritualisation, visible remains or different vegetation, parts of the landscape remained connected with former or 'ancestral' presence and therefore may have presented themselves as favourable house sites. As we have seen earlier, ancestral barrows may have had a similar connotation and hence were a possible pull factor for settlement location.

Moreover, there are areas where the domestic mobility apparently was not that high. It is in that respect interesting to observe that in the coastal areas, West-Friesland and in the river area of the central Netherlands, all areas with a dynamic landscape in geological terms, constancy of place apparently was current. In West-Friesland the settled landscape shows a structured lay-out with houses surrounded by a ditch system that also encloses the arable plots. Houses were frequently rebuilt and enlarged (IJzereef and Van Regteren-Altena 1991, 70). In the river area as well, several house plans are discovered in some occasions within a restricted settlement area. Some of these may have been contemporary and there are several indications that there is a considerable time depth involved. This suggests that that farmsteads had a use-life of a few generations (Knippenberg, this volume) up to possibly seventy years or more.

This apparent constancy of place may be related to the restrictedness of space in the dynamic landscape of the river

area and West-Friesland, but it would be too deterministic to use that as a sole explanation for the observed distinctions in house mobility. One of the false premises may have been to assume a too short life span of building wood. The good resolution of the river area data at least seems to suggest this (Knippenberg and Jongste 2005; Arnoldussen in prep.) If structures lasted beyond a single human generation, we will have to rethink our settlement models as well. It may have been norm both in the wetlands and in the 'dryland' zones that farms kept to the same place for several generations rather than one only. This is certainly one of the hypotheses that we will have to investigate in the future.

### Models of change

Another assumption that recently has come under discussion is the dating of Bronze Age houses. The general consensus, in Dutch, German and in Scandinavia literature, is that the Late Neolithic house is two-aisled of structure and that the Bronze Age house is three-aisled (Fig. 1.7). Since the youngest two-aisled houses date to around 1800 BC, the Dutch Noordwijk house for instance (Van der Velde, this volume), it was assumed that the three-aisled farms developed from 1800 BC onwards (cf. Fokkens 2001) and indeed a few houses were claimed to date to this period, for instance houses of Meteren-De Bogen and Dodewaard (Meijlink and Kranendonk 2002; Theunissen 1999). Research by Arnoldussen, however, has shown that in fact not a single plan from the Low Countries can be securely dated to the centuries between 1800 and

1500 BC (Arnoldussen and Fontijn 2006; Arnoldussen in prep.) What does that mean? Was the Low Countries uninhabited in those 300 years? Certainly not, because from the barrows data it is clear that many people died in that period (Bourgeois and Arnoldussen 2006). So did they not build houses? And what made the three-aisled farms of the Middle Bronze Age-B so much more visible for modern archaeologists compared to the farms of the previous and immediately following period?

These questions are difficult to answer, but a few lines of discussion have been forwarded. In the first place one might look at processes of change and innovation from a theoretical point of view, like the human geographer Rogers has done. Rogers shows that the acceptance of innovations follows a logistic curve. In his work he not only describes the mechanism of innovation, but also why some innovations are more readily accepted than others. He states that an innovation only can spread fast when it is compatible within a given social system, implying that it has to be capable to fit existing values and norms; the ideology (Rogers 2003, 240). Also the role of leaders (role models) in the process of acceptance is important, and qualities like 'indispensability' of the innovation itself that can speed up the process. This is of course only a small number of variables involved in the acceptance process.

These variables influence the steepness of the logistic curve, but of great importance is also the critical mass: 'the critical point after which further diffusion becomes self-sustaining.' (Rogers 2003, 343). Before a critical mass is reached, an innovation is adopted only slowly: people experiment, there are relatively many sceptics and there is no social plane. If the critical mass is reached, however, acceptance develops fast. In the first place that happens because the innovation becomes fashion, in the second because the innovation can be so encompassing that without adoption communication with the main stream becomes almost impossible. This, for instance, is the case with technological innovations like the introduction of the telephone and later the Internet (Rogers 2003, 343).

If we apply these principles to the introduction of the three-aisled longhouse of the Middle Bronze Age, we might argue that the period between 1800–1500 BC represents a long introduction phase (Fig. 1.8, phase A). However, the scarcity of settlement sites with recognisable houses for this period should also be considered, as it indicates differences in representativeness. Consequently, the 1800–1500 BC period is in fact a gap of about 300 years of which we know only few house structures. After 1500 BC 'all of a sudden' everyone builds regular three-aisled longhouses. Following Rogers' principle that does mean that in the period before 1500 the innovation must have developed. However, this apparently happened on a scale sufficiently small as to be hardly visible archaeologically.

Around 1500 BC the critical mass for the innovation represented by the three-aisled longhouse is reached. Subsequently the acceptance went very fast, possibly within two or three generations. What we then see is

the introduction of a fully developed package and no experiments. Longhouses were built everywhere in a large distribution area from Scandinavia to Northern France. Presumably, the concept reached a stable phase in which it became tradition very fast (Fig. 1.8, phase C) because hardly any adjustments of changes can be seen. It is adopted in several landscapes as well (Fokkens 2001; Arnoldussen and Fokkens, this volume, Fig. 2.14).

In phase D (Fig. 1.8), after 1000 BC, the reversed situation is visible. Just as sudden as it appeared, the longhouse disappears again, to be replaced by frequently smaller and differently constructed houses of the Late Bronze Age. By 900 BC, once again significant standardisation of house types was achieved with the typical Early Iron Age house (Fig. 1.4, bottom). The introduction of the latter type is almost as sudden and also takes place within two or three generations.

This discussion of Rogers' model of the acceptance of innovations makes the process perhaps better understandable, but does of course not explain the changes. That is not easy indeed, although the attributes of the process of acceptance make a few aspects more clear. In the first place, from the speed and the extent of the acceptance it is clear that it must have been a fundamental change that had impact in the whole realm of social and economic life, possibly in the cosmology of people. From the speed and the wholesale acceptance it also follows that the innovation was acceptable within the social reality of the time and that the communication networks of the time were already functioning for a while. The innovation was, when the critical mass was reached, more or less a social inevitability. It was adapted to all regions and physical landscapes, so it probably is not only related to an economic innovation.

What seems to be clear is that the innovation not only concerns the three-aisled farm as a technological innovation. Several authors have already stressed the importance of the cattle in the Middle Bronze Age (IJzereef 1981, 177; Rasmussen 1999; Olausson 1999). It was definitely important in the period before 1500 as well (Arnoldussen and Fontijn 2007, 296), but after 1500 it may have become one of the focuses of social and economic life (Roymans 1999; Fokkens 1999; 2003). From the Middle Bronze Age onwards manure probably was collected to fertilize the poor Pleistocene soils of the Low Countries and cattle became the heart of a new type of economic practice, which we now call a true-mixed farming economy (Louwe Kooijmans 1993, 104; Fokkens 1999). Its success may account for at least one aspect of the fast acceptance of the innovation. Another may be the closely related social qualities of cattle as an exchange object (Fokkens 1999, 41; cf. Kristiansen and Larsson 2005, 277).

As a final remark, it may be profitable to look at interpretations that are not based on the assumed interrelation between indoor stalling and the emergence of the regular three-aisled house, as changes in house structure need not be related to changes in agricultural strategies.

## Concluding remarks

In this article we have offered a survey of the different approaches that presently are both being implemented and under discussion in the archaeology of Bronze Age settlement sites in the Low Countries. It is quite clear that the potential of, and for, settlement research in the Low Countries is high. This is especially so when large-scale research enables us to combine the data of settlement research, burial analysis and deposition studies in comprehensive archaeologies of the cultural landscape. More and more people realize that this kind of analysis of cultural landscapes is more rewarding than an approach that focuses only on single sites. Prospection methods, using landscape oriented methods like survey trenches are being adopted to accommodate this new research focus.

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## Notes

- 1 Rogers 2003: 11. The first print of his Diffusion of innovations appeared in 1962. It has been reprinted in much updated versions several times, the last time in 2003. The same principles were used by Zvelebil (1984) to describe the transition from hunting to farming in NW-Europe.

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## 2 Bronze Age settlements in the Low Countries: an overview

*Stijn Arnoldussen and Harry Fokkens*

### Introduction

In this chapter we aim to provide an up-to-date overview of the available data on Bronze Age settlement sites, while in the subsequent chapters various settlement sites from a wide range of landscapes are discussed with a specific focus on the available data on houses, farmsteads and settlements as a whole offered by these sites.

In order to place the available data on Bronze Age settlement sites from the Low Countries in proper perspective, attention must be paid to their chronological and topographic characteristics, as well as to the local variations in geology and their relevance to prehistoric occupation. Subsequently, a synthesis of the available data at the levels of the house, the house site or farmstead and the settlement site as a whole is presented.

### Dating the Bronze Age

For the basic chronological subdivisions of later prehistory in the Low Countries, several typochronological schemes are available. For the Netherlands, the periodisation differs sometimes remarkably from the neighbouring regions. In southwest Germany and France, the traditional periodisation as set out by Montelius (1885) and Reinecke (1924) is most often used, based on bronze and pottery typology, now more and more backed-up by radiocarbon dates. This system is, in nearly identical form, applied in eastern France. For the Atlantic zone (Brittany and Normandy) of France, a rather different – bronze typology based – system is sometimes applied. In Belgium, both the south-German/French system as well as the Dutch system are employed (Fig. 2.1).

The Dutch chronological system has a few particularities

(Fokkens 2001; Lanting and Van der Plicht 2003, 150–151). To start, the main characteristics of the various periods were established communally at a conference on the Dutch periodisation in 1965 (Anonymous 1967; Fig. 2.2). For the start of the Bronze Age, the first occurrence of (imported) Bronze was declared the starting point. Subsequent periods were predominantly defined by changes in the mortuary practices and the pottery (Fokkens 2001, 241–243). The early start of intensive radiocarbon dating in the Netherlands, allowed to better fix the periods in absolute dates. In 1977, Lanting and Mook presented an influential overview of the radiocarbon dates available in relation to the 1965 periodisation (Lanting and Mook 1977). Although offering a better absolute placing of the various cultural traits, the 1977 periodisation did not change the sets of associations as laid out in 1965.

Since the nineteen eighties dendrochronological calibration changed the whole outlook of prehistoric dating again and some confusion over the calibrated date range for some Bronze Age periods did rise. In this book we use the periodisation that was accepted in 1992 by the National Service for Archaeology, Cultural Landscape and Built Heritage (RACM) and which is also used in the recent overview *The Prehistory of the Netherlands* (Louwe Kooijmans *et al.* 2005).<sup>1</sup>

### The Low Countries during the Bronze Age

The Low Countries is a label used here to refer to the deltas of the rivers Rhine, Meuse and Scheldt and their tributaries. In other words, in this study the Low Countries comprise the Netherlands, a small part of adjacent Germany and Belgium below 80 m altitude.

The thus defined Low Countries constitute a transition

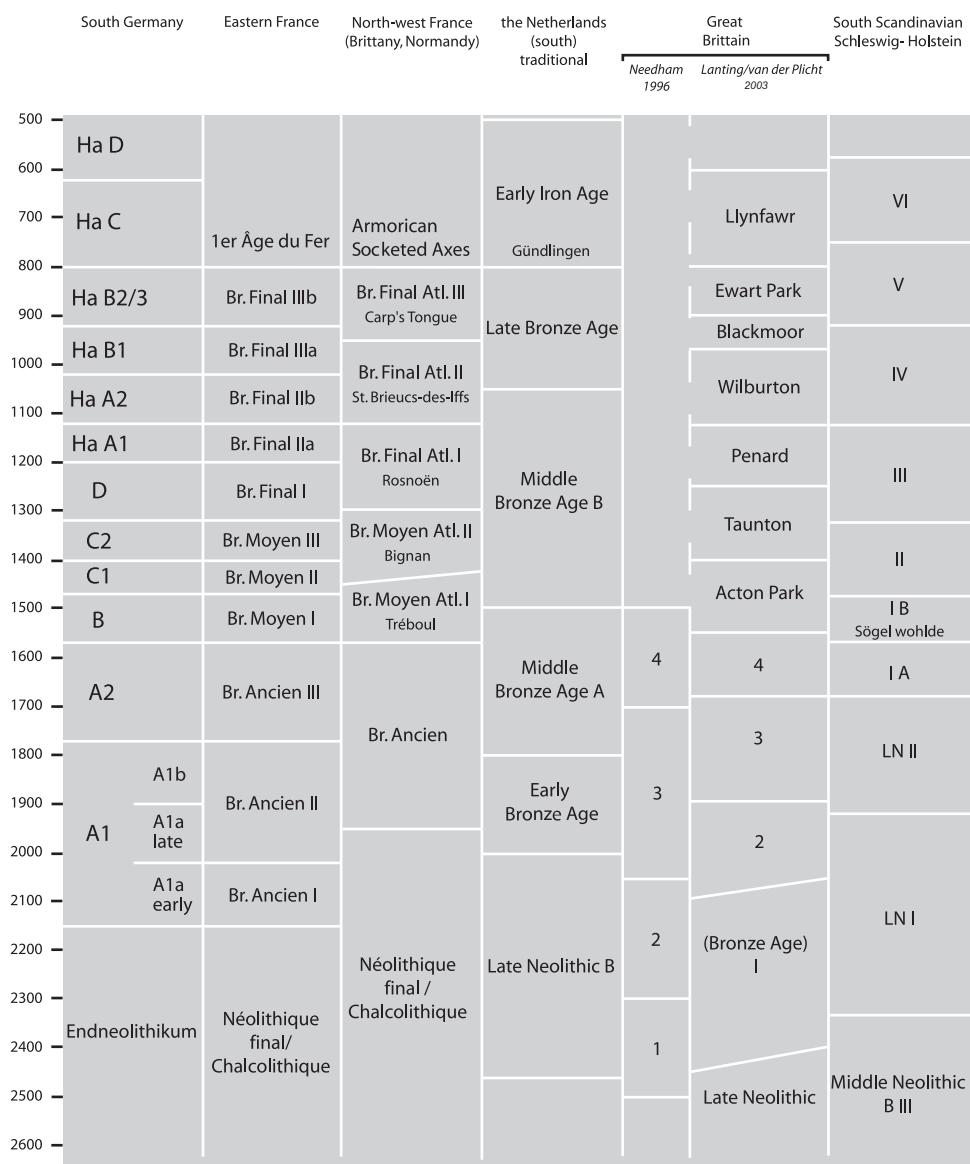


Fig. 2.1 Chronology: periodisation schemes current in the Low Countries (after Fontijn 2003, 10, fig. 1-4)

zone between the Nordic and the Atlantic World during the Bronze Age. The main rivers Rhine and Meuse formed at the same time transport routes – providing connections with the hinterland of Central Europe – and a border zone between two important interaction zones and exchange networks. For various phases of the Bronze Age differences in pottery traditions, bronze deposition patterns and funerary practices can be outlined across the border zone of the main rivers (e.g. Verlinde 1987; Fokkens 1997; 2001; Theunissen 1999; Fontijn 2003). The same applies to settlement site data. Although in general all Middle Bronze Age (-B) houses are part of the regular three-aisled longhouse tradition, in the several (physical geographical) regions of the Low Countries different subtypes have developed. Regional differences can be outlined based on the types of roof-bearing structure and the frequency and types of renovations of Middle Bronze Age houses (Arnoldussen in

prep., chapter 5). Since the physical geography and geology of the Netherlands is complex and had an important influence on the habitability of the different regions, we will introduce the physical geographical regions in a bit more detail.

### Introduction to the Bronze Age occupation of the physical geographical regions of the Low Countries

Most of the region under study can be classified as lowland areas, with altitudes up to 40 m above sea level. These are the (former) river deltas of the (precursors of the) Rhine, Meuse and Scheldt rivers. Outside these areas, fluvial influence on the landscape has been limited. Both to the north, as well as to the south of the Dutch central river

Period	Definition	Cultural phenomena
Early Bronze Age 3600-3450 BP	The Early Bronze Age begins with the first appearance of Barbed-wire pottery	<ul style="list-style-type: none"> <li>Structureless burial mounds with approx. N-S oriented graves</li> <li>Bronze industry of Irish origin, and native production of Emmen-axes</li> <li>Initial phase of Sögel-Wohlde complex?</li> <li>Late beaker pottery with barbed-wire decoration</li> </ul>
Middle Bronze Age A 3450-3330 BP	The Middle Bronze Age A begins with the appearance of burial mounds with a circular ditch, and with the first appearance of Hilversum and Drakenstein pottery in the Central and Southern Netherlands	<ul style="list-style-type: none"> <li>Structureless barrows and mounds with circular ditches</li> <li>Sögel-Wohlde complex</li> <li>Hilversum-Drakenstein pottery</li> </ul>
Middle Bronze Age B 3300-3000 BP	The Middle Bronze Age B begins with the appearance of burial mounds with post circles	<ul style="list-style-type: none"> <li>Burial mounds preponderantly with post circles of various types</li> <li>Settlements with 3-aisled houses, and "Kümmerkeramik" in the Northern and Northern and Eastern Netherlands</li> <li>Settlements with mainly 3-aisled houses, and Drakenstein-Laren pottery in the Southern and Central Netherlands</li> <li>In West-Friesland: burial mounds with ring ditch, and settlements with 3-aisled houses, and "Kümmerkeramik" ("Old-Hoogkarspel"; similar to Laren Pottery)</li> </ul>
Late Bronze Age 3000-2600 BP	The Late Bronze Age begins with the first appearance of urn-fields, and of pottery showing influence of the Southern German Urnfield Culture. In the Northern and Eastern Netherlands this earliest stage is characterised by the so-called "long beds" of Gasteren type	<p><i>In the north and east of the country:</i></p> <ul style="list-style-type: none"> <li>urn-fields with "long beds" of Gasteren type, keyhole- and ring-shaped ditches</li> <li>urns of Gasteren type, Zweihenkelige Terrinen, biconical urns</li> <li>settlement with 3-aisled houses</li> <li>Bronze Industry of "Hunze-Ems type"</li> </ul> <p><i>In the south and central regions of the country:</i></p> <ul style="list-style-type: none"> <li>Urnfields with "long beds" of Goirle and Rietveld types</li> <li>Pottery showing influence of the Southern German Urnfield culture, and with Kerbschnitt decoration</li> </ul> <p><i>In West-Friesland:</i></p> <ul style="list-style-type: none"> <li>Settlements with three-aisled houses, and pottery with a pronounced biconical element ("young Hoogkarspel")</li> </ul>

Fig. 2.2 Traditional periodisation and main cultural traits for the Bronze Age in the Netherlands, based on Anonymous 1967 and Lanting and Mook 1977 (after Fokkens 2001, fig. 1)

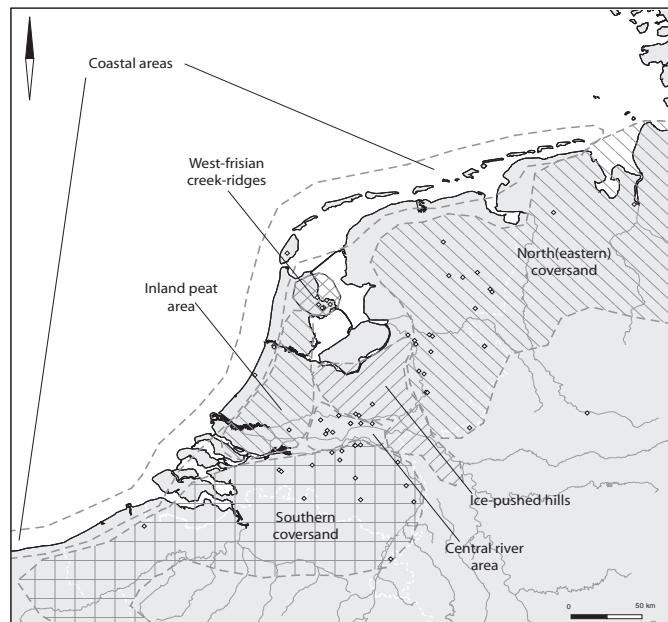
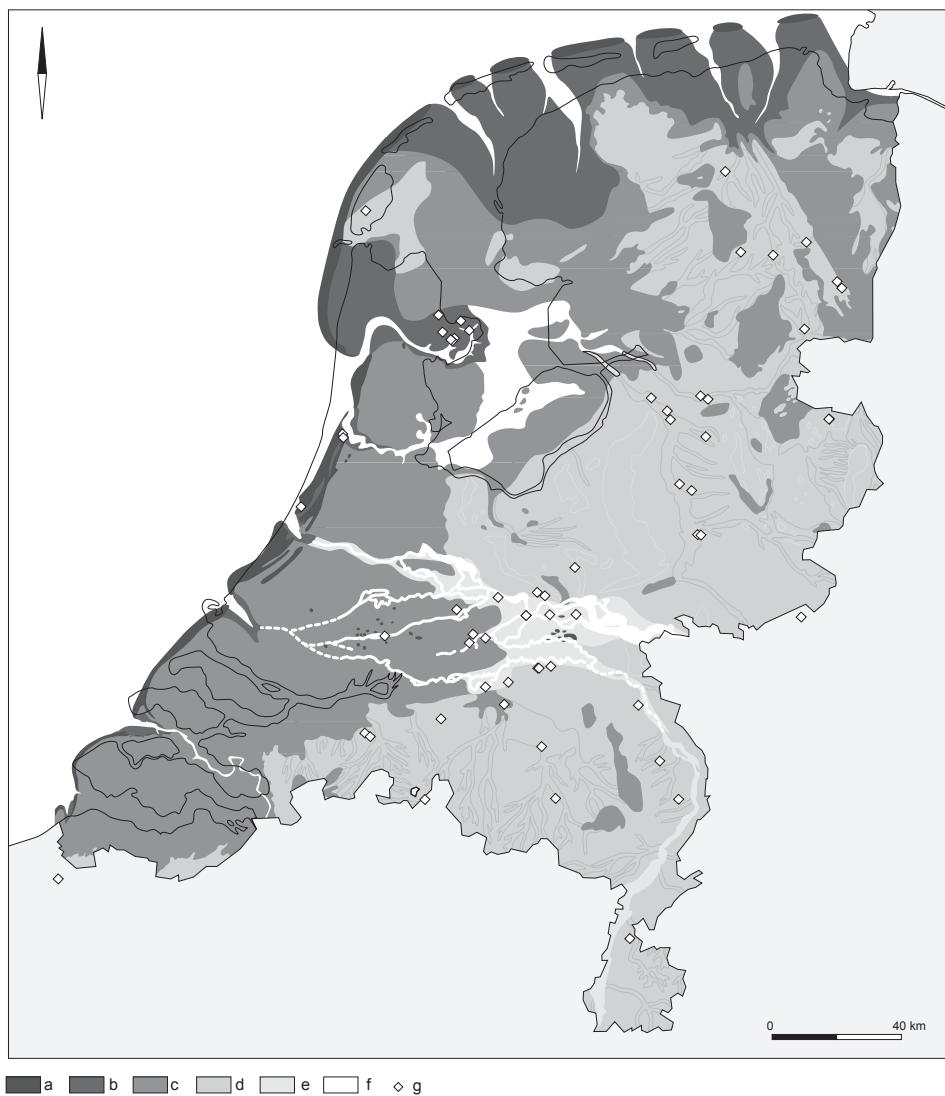


Fig. 2.3 The Low Countries: main physical geographical areas. Legend: a: Land; b: Bronze Age settlement site with Bronze Age house plans

area, extensive areas of undulating Late Glacial coversand ridges and brooks are found (Fig. 2.3).

In these landscapes of predominantly Pleistocene age, some significant elevations occur. In the northern and central-eastern Netherlands, the Saalien (c. 370kA-130kA) glaciations created a WNW-ESE line of ice-pushed hills across the Netherlands. The northernmost of these were

deformed and eroded by the glacier ice after their formation, thereby limiting their maximum height. The ice-pushed ridges that formed at the frontier of the maximum glaciation (c. 200–130kA), such as the 'Utrechtse Heuvelrug' and the ice-pushed hills of the 'Rijk of Nijmegen' near the German border are significantly steeper and higher (up to 108 m above sea level). In the south(east) the Low Countries are



*Fig. 2.4 Simplified paleogeographical map of the Netherlands directly prior the Bronze Age (c. 3800 BP: after De Mulder et al. 2004, 228, fig. 143). Legend: a: Coastal dunes and river dunes; b: Estuaries and tidal flats; c: Peat; d: Floodbasin deposits; e: Sand; f: Open water; g: Settlement site with Bronze Age house plan(s)*

bordered by the Belgian Ardennes and the German Eiffel. Both ranges are part of the 'Rijns massief' formation, that due to tectonic movement gradually became ever higher during the Pleistocene. They now reach up to 650–880 m above sea level.

From a geological point of view, during the Holocene, the coastal dunes with their adjacent inland tidal areas as well as the river areas proper formed the most dynamic regions. The coastal dunes to the west and north gradually but surely closed and migrated westward, pushing the tidal areas ever more to the (north)west. The initially steep sea level rise and the closing of tidal inlets led to peat formation in the more and more protected inland regions, while the rivers – in keeping pace with sea level rise – deposited thick layers of sediments in the surrounding floodbasins. The upland Pleistocene coversand areas saw much less activity, although here (fluvial) erosion, colluvium and

wind-blown sand deposits changed details of the outlook of the landscape.

During the Bronze Age in the Low Countries six physical geographical regions can be distinguished, each with their own properties and dynamics:

- the coastal dunes with their adjacent peri-marine tidal areas to the north and the west;
- the inland peat areas;
- the river areas proper;
- the north(east)ern coversand areas with their ice-pushed hills and boulder clay plateaus;
- the southern coversand areas.

The geological particularities and the Bronze Age occupation of these six areas will be briefly addressed below.

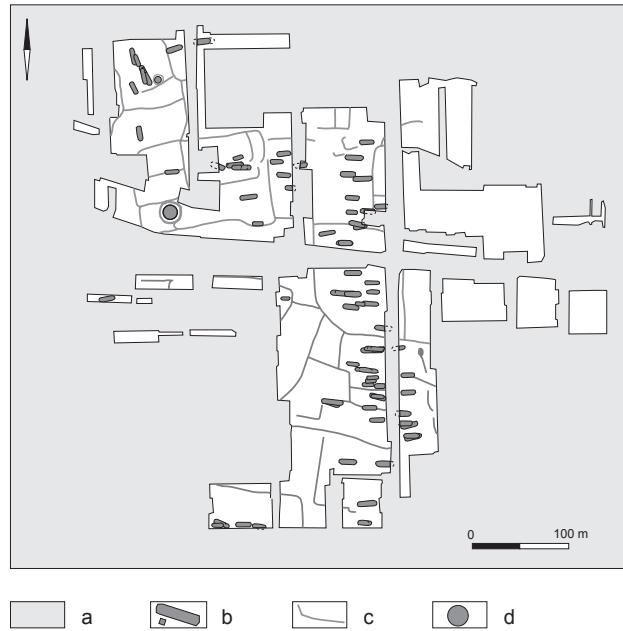


Fig. 2.5 Interpretation of the Bronze Age cultural landscape at Bovenkarspel-Het Valkje (after Buurman 1996, 16, fig. 5 and IJzereef 1989, 22). Legend: a: Not excavated; b: Bronze Age houses; c: Bronze Age ditches; d: Pre-Bronze Age barrow

### The coastal dunes and tidal areas

The coastal dune areas comprise sandy beach barriers and inland mudflats. The former were later modified by aeolian dune formation. To the west, the line of beach barriers was nearly completely closed, but the outlets for the Scheldt, Meuse and Rhine rivers and the Bergen and Oer-IJ fluvial estuaries remained open. The beach barriers were at this time slowly moving westwards. In principle the (former) beach barriers and dunes were suitable for occupation. These were relatively dry and fresh water could be obtained from wells. Potential arable land and grazing grounds were present in the coastal plains and inland zones.

The relatively closed nature of the beach barriers allowed peat to develop in the coastal plains behind the barriers. In the vicinity of the main rivers, these zones could quickly change from salt water, to brackish or sweet water environments. A notable exception is the West-Friesland estuary situated behind the substantial Bergen opening in the coastal barrier. Here, for centuries a tidal creek system remained active. It was not until halfway the Bronze Age, that the creeks silted-up. Due to compaction and oxidation of the surrounding deposits, the former creek beds took on the outlook of sandy ridges that formed the highest parts of the landscape, a process known as 'relief-inversion'. In the north, large tidal areas remained, as large gaps in the barrier were still present there. Here, the coastal barriers were slowly shifting towards the mainland. Throughout the entire Bronze Age, this part remained an active, marine-influenced landscape.

During the Bronze Age, several of these areas were used and inhabited. From the older, more easterly located,

beach barriers, various find spots are known. These include deposits of bronzes in the peat zones between barriers as well as settlement sites and fields and a few burials. From the active (westernmost) barrier, as well as from the tidal mudflats in the west and the extensive mudflats in the north, few Bronze Age find spots are currently known. Presumably, these were geologically too dynamic to settle, so that only sites with a much poorer archaeological visibility (e.g. fishing spots, boat yards, meadows) are to be expected there. In stark contrast, the relatively high ridges of the former West-Friesland tidal creeks were densely settled.

The best view of the occupation in these landscapes is offered by the results of the various excavations at Bovenkarspel (Fig. 2.5; IJzereef 1981; 1988; IJzereef and Van Regteren-Altena 1991) and Hoogkarspel (Bakker *et al.* 1977). At Bovenkarspel a large part of a Bronze Age landscape could be mapped, with three-aisled houses set inside plots defined by ditches. In one instance, an older barrow seems to have been incorporated into the later system of ditches (Bakker *et al.* 1977). Next to the houses, circular structures – presumably related to the drying or storage of cereals (Buurman 1996) – are encountered in great numbers. The granaries that are so characteristic for the sandy soils are notably absent.

### The inland peat areas

Behind the tidal mudflats, extensive low-lying areas were present. They served as floodbasins for nearby rivers and those near to the coastline could incidentally receive some salt water influx. Yet by and large, these areas were

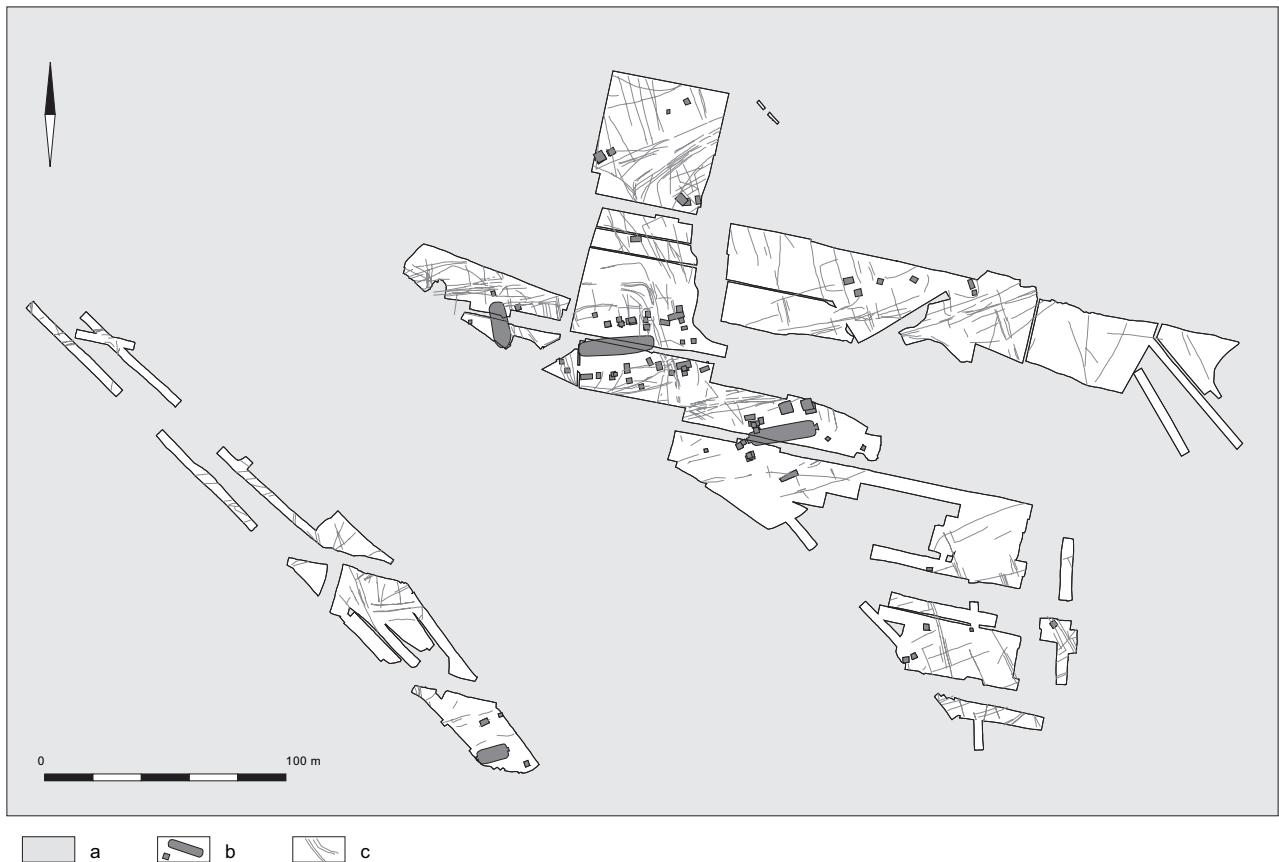


Fig. 2.6 Extent and systems of orientation in the built-up part of the cultural landscape at Zijderveld (after Knippenberg and Jongste 2005, 60, fig. 6-22). Legend: a: Not excavated; b: Bronze Age structures (houses and outbuildings); c: Fences

fresh water basins, rich in shallow open water, where initial reed marshes were succeeded by sphagnum bogs. Locally high parts of late Pleistocene wind-blown dunes (Dutch: 'donken') were 'sticking out' of the floodbasin peat. Several rivers drained the peat lands. The rivers had small and stable channels in this part of the river area, as the compact humic clays and peat inhibited easy lateral erosion. The nutrition-rich water they supplied, allowed for alder swamps to develop in their immediate vicinity.

In the peat areas proper, no Bronze Age settlement sites are to be expected. Which does not mean that the area was not used or inhabited at all. On the relief-inverted river beds that cross-cut the peat area, for instance, Bronze Age settlement sites have been found (Louwe Kooijmans 1974; Fig. 2.10 A, B). Some of the river dunes ('donken') have yielded indications for human activities during the Bronze Age as well, but these have not seen enough research yet to be clear on the exact nature of this human presence.

### The river areas

Several substantial rivers drain the Low Countries. The morphology and dynamics of these rivers are influenced by a combination of factors, of which gradient, bed load and lithology of the encasing (floodbasin) deposits are the most important (Berendsen and Stouthamer 2001).

Accordingly, various types of rivers were active. In the east – with higher gradients, coarser bed load and easily erodible (sandy) encasing sediments – predominantly meandering rivers occur. These have wide (200 – 2000 m) zones of channel bed deposits, within which the levees constantly shift laterally. In the central part of the Dutch river area, anastomosing fluvial systems predominate. These river systems consist of multiple coeval channels, which have separate small (5–50 m) levees and enclose floodbasins. This river type is typical to areas where the encasing deposits do not allow for easy lateral shifting of the channels. Thus, stable and deeply incised channels occur. In case of high water levels, the levees are easily breached and extensive crevasse formation takes places in the floodbasin. Rivers have a limited life span for a given location and 800 yrs is used as a mean age. This means that constant changes occur including meandering, crevasse formation, infilling of residual gullies, the building-up of new channels, etcetera.

Different parts of fluvial landscapes had different possibilities for human use. Active waterways will have provided a communication route for goods and information, and it is clear that the rivers were fished by hook-and-line, weirs and possibly also by other techniques. Furthermore, the (confluences of) main rivers were places where some of the most special bronze objects were deposited (Fontijn

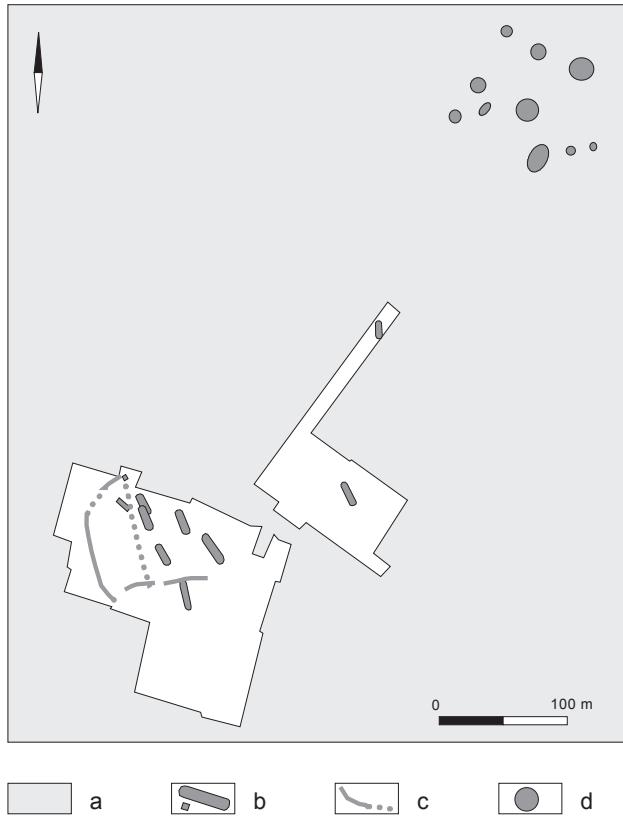


Fig. 2.7 Hijken: an example of a Bronze Age settlement site from the northern coversand area (after Harsema 1991, 23, fig. 2). Legend: a: Not excavated; b: Bronze Age structures (houses and outbuildings); c: Possible Bronze Age palisades; d: Bronze Age barrows

2003). Various parts of the river areas came to be intensively occupied during the Bronze Age. This occupation took place on inactive (fossil) channels' levee deposits, as well as on the often extensive (stacked layers of) crevasse deposits (Arnoldussen in prep., chapter 4). On some of these sites, evidence for fields and formal burial places have been found.

Recent excavations at Zijderveld have once again illustrated how vast the built-up environment around the house sites was (Fig. 2.6; Knippenberg, this volume; Knippenberg and Jongste 2005). Some fences of various types might have bound up individual house sites, but the majority incorporated large areas of the surrounding landscape into the settled area. Presumably, thus defined parcels set aside particular plots for agriculture or livestock, the presence of the latter sometimes being vividly illustrated by preserved cattle hoof imprints.

#### The north(east)ern coversand areas

This region can be subdivided into the central and north-eastern parts of the Netherlands and adjacent Germany where the Saalian glaciation left its traces in the form of ice-pushed ridges and boulder clay plateaus, and the more

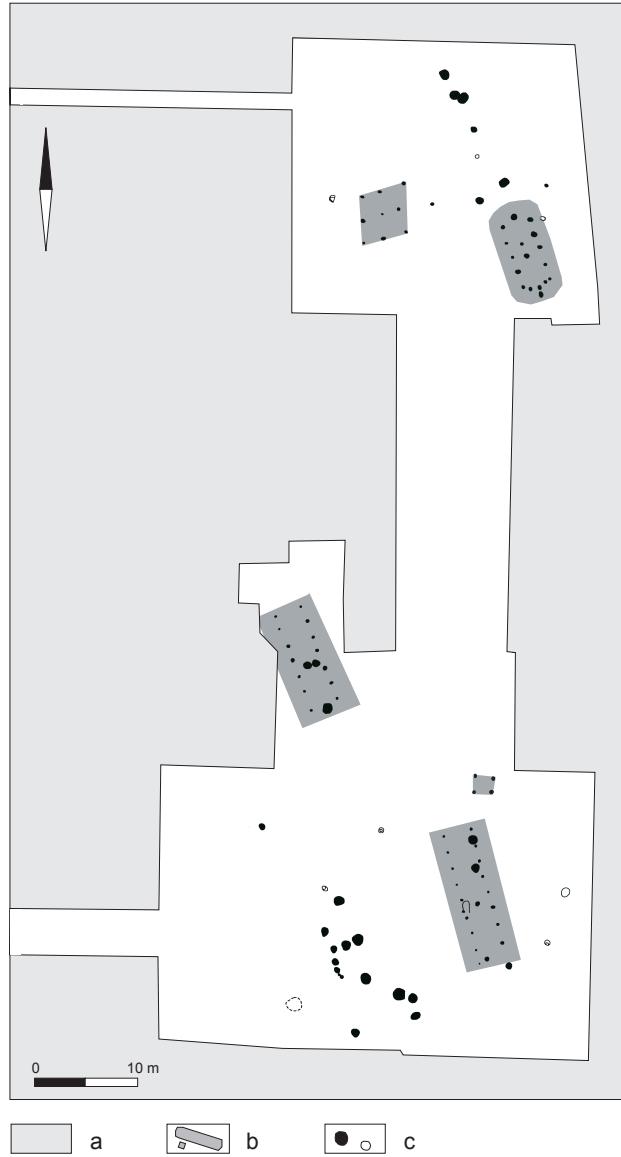


Fig. 2.8 Boxmeer: an example of a Bronze Age settlement site from the southern coversand area (after Hiddink 2000, 24, fig. 7). Legend: a: Not excavated; b: Bronze Age houses and structures; c: Pits and other features

gently undulating coversand ridges beyond these. Most of the landscape was still covered with forest in the Middle Neolithic, but these woodlands were opened up rapidly during the Bronze Age (Spek 2004, 121; 133). Bronze Age habitation clustered near the edge of the boulder clay plateau and near fresh water ponds or streams, and speeded the replacement of forest by (permanent) heath lands on the generally dry and mineral-poor soils (*ibid.*, 136–138).

It is from these areas that the first Bronze Age settlements of the Low Countries are known since the late fifties, notably Deventer and Elp in the east and the north of the Netherlands. Since these initial discoveries, many more settlement sites have been uncovered. Especially the (sand covered) boulder clay plateau of the province of Drenthe in the Netherlands has yielded a large number of Bronze

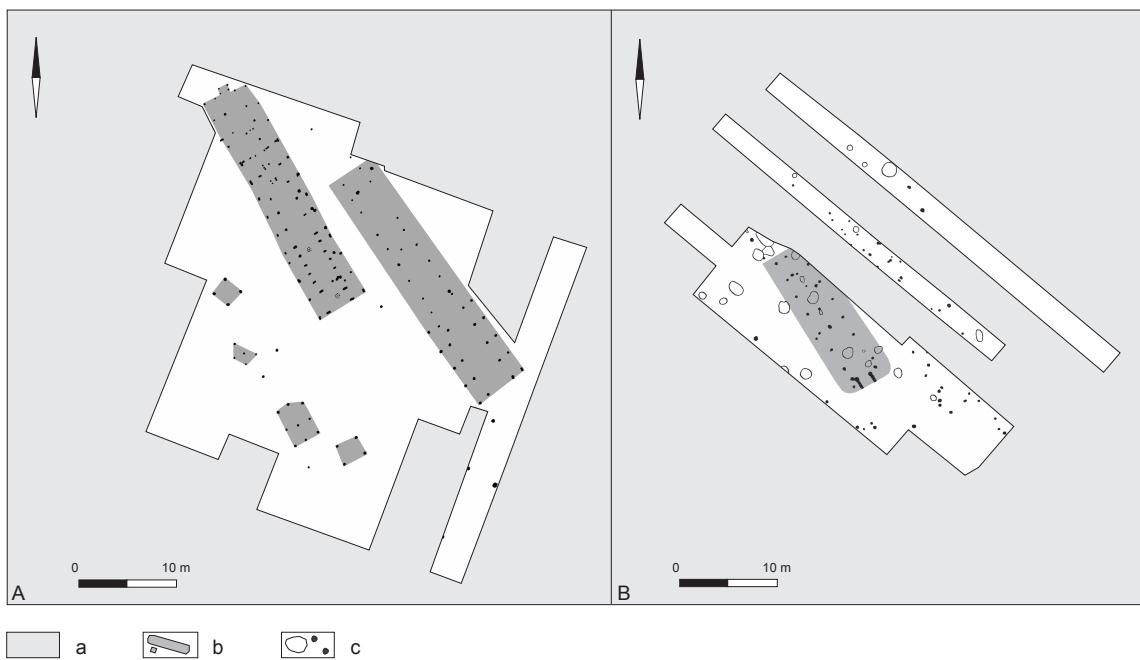


Fig. 2.9 Deventer-Margijnen Enk: an example of a Bronze Age settlement site from the eastern coversand area (A: two Middle Bronze Age/Late Bronze Age houses; B: Middle Bronze Age house; after Modderman 1955, 25–29, fig. 4, fig. 7).  
Legend: a: Not excavated; b: Bronze Age houses and structures; c: Other pits and features

Age settlement sites (Harsema 1997). Here the relation to barrows and deposition locations can often be studied in detail because large areas have been uncovered, for instance at Elp, Angelsloo-Emmerhout, Hijken (Fig. 2.7) and Borger (Kooi, this volume). These sites show that in this part of the Low Countries, settlement sites could be established next to (pre-existing) funerary sites, although it is unclear whether the presence of these funerary sites triggered later habitation (Bourgeois and Fontijn, this volume; Bourgeois and Arnoldussen 2006). Near the end of the Middle Bronze Age-B and during the Late Bronze Age, urnfields were established at many locations (Kooi 1979).

The northern Netherlands also are the region par excellence for the study of Celtic fields that developed since the Late Bronze Age into the large complexes of arable that we know of the Iron Age and the Roman period (Brongers 1976; Spek *et al.* 2003). From the inland sphagnum bogs beyond the settlement sites and funerary sites, wooden bog tracks (Casparie 1984; 2005), a shrine (Waterbolk and Van Zeist 1961; Van der Sanden 2000) and deposits of bronzes and organic remains are known.

The southern part of this physical geographical region is formed by the ice-pushed ridges of Utrecht and the Veluwe. The outskirts of Rhenen have become a core area of research for this part of the region (Van Hoof and Meurkens, this volume; Jongste 2001). Many prehistoric barrows are situated on the flanks and tops of the ice-pushed sediments, but only a small proportion of these has seen research (but see Bourgeois and Fontijn 2007).

From the (central)eastern coversand ridges, again several

Bronze Age settlement sites are known (cf. Fig. 2.9). Most of these were situated on the higher parts and flanks of these ridges, that were separated by lower-lying marshy areas or streams (Bouwmeester, this volume; Verlinde 2000). Smaller aeolian river dunes next to the Vecht and IJssel offered suitable locations for human occupation (Klomp 2003). In this part of the region, bronzes were deposited in stream valleys and marshes, the lowest parts of the landscape. A small number of Early and Middle Bronze Age barrows is known from the coversand ridges, but many (Late Bronze Age / Iron Age) urnfields (Verlinde 1987; 2000).

### ***The southern coversand areas***

The southern coversand areas of the Netherlands and Northern Belgium are characterized by the occurrence of gently undulating coversand ridges, cross-cut by streams and marshy areas. This part of the Low Countries always lay beyond the maximum Pleistocene glaciations, so no boulder clay deposits or ice-pushed hills are present. The subsoil consists of sediments of precursors of the rivers Rhine and Meuse, which in the Peel area are pushed to the surface by tectonic movements. During the Bronze Age this area was a vast and hardly accessible moor that formed a large uninhabited zone between the Meuse valley and the western coversand plateaus. From this area several Bronze Age settlement sites and well-researched barrow groups are known (Glasbergen 1954; Van Impe 1976; Theunissen 1999; cf. Fig. 2.8). Like in the north(east) coversand area

we are reasonably well-informed on the Late Bronze Age funerary sites (Roymans 1991; Roymans and Kortlang 1999). The study of Bronze Age deposition sites from the southern coves and areas traditionally was – and still is – predominantly focussed on sites of metal deposition (Fontijn 2003).

In the Belgian part of the Low Countries, settlement sites are still scarce (Bourgeois *et al.* 2003), but this situation is likely to change with large-scale research resulting from the Malta legislation. Through aerial photography, large numbers of (leveled) Bronze Age barrows could be discovered (cf. Ampe *et al.* 1996; Cheretté and Bourgeois 2002; 2005).

### **Some concluding remarks**

In conclusion, the various archaeologically visible aspects of Bronze Age local communities such as their settlement sites, their funerary locations and some of their depositional practices appear to have been extensively researched. But despite the evidently vast body of information compared to other regions of Europe, some gaps in our current knowledge – as far as settlements are concerned – should be pointed out.

The data on Bronze Age settlement sites is somewhat imbalanced. If we – for sake of simplicity – use the presence of recognized house plans as the defining element of a Bronze Age settlement site, we currently know *c.* 65 settlement sites. The distribution of these over the various regions introduced above seems rather balanced, but the scarcity of sites from the inland peat area (e.g. Molenaarsgraaf) and the coastal barriers (e.g. Noordwijk) is striking. The distribution of settlement sites with house plans over the various sub-phases of the Bronze Age is even more imbalanced. Only three sites have yielded reasonably reliable Early Bronze Age house plans (Molenaarsgraaf, Noordwijk, Bocholt). For the Middle Bronze Age-A, the situation is even worse; despite some recent claims (Päffgen and Wendt 2004; Arts and De Jong 2004; Meijlink, this volume), the evidence for Middle Bronze Age-A houses is rather disputable.

This scarcity of sites from the Early Bronze Age and Middle Bronze Age-A strongly contrasts with the high number of find spots known for the ceramic types typical for the periods in question (Barbed Wire stamp decorated ceramics and Hilversum style decorated ceramics respectively). Apparently, for some yet ill-understood reason we fail to recognize the houses on these sites, or for these periods altogether.

Considering that fields must have been vital elements of Bronze Age agricultural enterprises, it is striking that we are relatively ill-informed on the location, lay-out, structural properties and agricultural use of (especially Early- and Middle-) Bronze Age fields. For the Early Bronze Age, information is nearly completely absent (but see Van der Velde, this volume), while for the Middle Bronze Age, the situation is only slightly better. From several Bronze Age

settlement sites and marks are known, but these can rarely be related to field boundaries such as ditches or fences. Especially for the latter, it is very well possible that these defined the main lay-out of fields and pastures, and in some cases fenced drove ways have been suggested.

### **Bronze Age settlement sites in the Low Countries: an overview**

In this section we want to discuss some characteristic aspects of habitation from different perspectives and scales. First we provide a very brief overview of the information available on the subsistence base, craft activities and interaction spheres of Bronze Age local communities. This serves to complement the subsequent more technical discussion of settlement site structures at the three main levels: that of the house, the farmstead or house site and the settlement site as a whole.

#### **Subsistence strategies**

First and foremost, we are dealing with communities that practiced a system of 'true' mixed-farming (*sensu* Louwe Kooijmans 1993b), *i.e.* adhering to a system of combined, and interdependent, crop cultivation and livestock rearing. For the areas where information on the livestock composition can be obtained – and of which one should keep in mind that these were generally excellent pasture areas in prehistory – it appears that cattle dominates (60–80%), followed by sheep and pigs in much smaller quantities. Possibly, sheep ranked second in the West-Friesland creek ridge landscape, whereas pigs predominantly ranked second in the central river area (Arnoldussen and Fontijn 2006, 299, fig. 8).

For the northernmost parts of the Low Countries, there are good indications to assume the indoor stalling of animals, whereas in the central and southern parts, the evidence is as yet weak or even positively lacking. Hunting seems to have been incidental and presumably did not significantly contribute to the Bronze Age diet (*ibid.*, Clason 1999). Due to the often poor preservation and the reliance on fine sifting meshes required for fish remains to be recovered, their importance is hard to assess. Nonetheless, a variety of fishes were eaten, and fishhooks and weirs are known for these periods (Louwe Kooijmans 1974, 250–260, 278, 333–334; Brinkhuizen 1986; Fokkens 1998, 111; Clason 1999; Bulten *et al.* 2002; Arnoldussen and Fontijn 2006, fig. 8).

The gathering of edible natural resources is hardly documented, but especially acorns are often retrieved in a charred state, possibly as discarded waste from acorn charring for human consumption. Sloe prunes, raspberries and wild apples are also incidentally recovered from Bronze Age settlements. The main staple, and possibly of prominent dietary importance, was cereal crops. Barley and emmer wheat are the most commonly recovered species,

supplemented by bread wheat and some millet and – from the Late Bronze Age onward – spelt and flax (Van Zeist 1968; De Hingh 2000; Brinkkemper and Van Wijngaarden-Bakker 2005).

### Craft activities

Besides being involved in food production, Bronze Age local communities undertook an impressive array of craft activities in their settlements. Of these, pottery production and hide processing (as evidenced by bone awls, needles and toggle buttons) appear to be the most common. Despite the numerous excavated Bronze Age sites in the Low Countries, no Bronze Age pottery kilns or significant quantities of misfired pots are known. This could either be taken to indicate that pottery firing (for reason of safety?) took place outside the settlement sites proper, or that the processes of pottery production were fashioned in a way that has poor archaeological visibility.

A few finds of footwear and clothing from the bogs in the northern parts of the Low Countries provide a vivid illustration of the shape and techniques used in working hides or fabrics (Van der Sanden 1990). The flint scrapers, spindle whirls and loom-weights recovered from many settlement sites provide more indirect evidence thereof. Carpentry skills are also very infrequently documented, and the worked posts recovered from houses in the river area display pragmatic, rather than very refined techniques. A single adze-hafted Late Bronze Age socketed axe is known (Van Impe 1994), which might – together with the few chisel-like implements currently known – hint at a specific carpentry toolkit. Basketry and wicker working might also have been an important craft activity, yet due to often poor preservation conditions, artifacts rarely survive (but see Therkorn, this volume; Bakker *et al.* 1968, 198; Brinkkemper *et al.* 2002, 508).

Bronze casting is also thought to have occurred on – or in the vicinity of – the settlement sites, but actual evidence is scant. At Wijk bij Duurstede, copper-alloy droplets from hammering hot bronze were found (Letterlé 1985, 332) and at Oss a part of a Middle Bronze Age composite mould was recovered from a pit together with some charcoal and sherds (Fontijn *et al.* 2002). The latter is particularly important as the mould combines models for casting both local styles of objects (a palstave and arrowheads) with a model for a type of wheel-pin common to north-German areas (*ibid.*).

Flint flakes presumably still formed part of the Bronze Age toolkit (cf. Hiddink 2000; Van Gijn & Niekus 2001), yet few types of artifacts can easily be interpreted typologically. Of these, scrapers and knives, and for the Late Bronze Age sickles, are most easily recognized. The predominant use of riverine nodules or flint from glacial deposits, limits flint tool size and the assemblages studied often reveal a rather pragmatic, bipolar reduction strategy (Niekus and Van Gijn 2000). Hammering-, polishing-, grinding- and rubbing stones are frequently recovered from settlement

sites and are often made from sandstone, granite or quartzite boulders. The use of volcanic porous rocks such as tephrite for cereal processing is only (infrequently) documented from the Late Bronze Age onward (Harsema 1979; Van Heeringen 1985).

### Regional interaction and communication

Despite the large number of Bronze Age settlement sites investigated in the Low Countries, little attention has been paid to the pathways and degrees of interaction within – and between – local communities (but see Louwe Kooijmans 1974; Gerritsen 2003). In the fluvial deltas of the Low Countries, river courses will have provided an easy axis of communication with other groups. This applies both to the active phase of a rivers – when boats and dugouts could be used – as well as to when rivers had become inactive, and due to relief inversion became the highest parts of the otherwise marshy floodbasin landscapes. As yet, no evidence for the existence of Bronze Age boats or dugouts in the Low Countries is known. For the Pleistocene soils, routes of communication are less easily reconstructed, although from the linear placement of barrows sometimes Bronze Age roads are reconstructed (cf. Kooi 1979; Bakker 1976; Jager 1985; Verlinde 1987; Roymans 1991). Although some Bronze Age bog footpaths might have served as bridgeheads across inaccessible parts of the bogs, most seem to end in the bog proper, rather than to cross it (Casparie 1984; 2005). Possible cart-marks (Jongste, this volume) testify to the existence of wheeled transport, yet give us little insight into their range or importance.

Although regional (festive or religious) gathering places may very well have existed, we currently know not a single site for which such a function has been or can be argued. It is nonetheless quite reasonable to assume that the exchange of marriage partners, breeding stock, food products and items of craft and adornment must have taken place beyond the scale of the household. The little attention that has been directed to the topic of interaction, usually entails the tracing of regions of origin for ‘exotic’ raw materials and objects or, alternatively, the study of regional styles. Bronzes are amongst the most obvious categories available for study, as the Low Countries lack the required ores for bronze production. The route, pace and number of stations along the way with which these object traveled cannot be unraveled, yet some items – such as the aggrandized (ceremonial) dirks (Fontijn 2001) or faience beads (Haverman and Sheridan 2006) – vividly illustrate connections spanning large parts of Atlantic West Europe.

Another approach concerns studies of regionality. By mapping the spatial distribution of types of houses, funerary monuments or objects such as locally produced bronzes or pottery, distinct regional groupings are sought for (cf. Van Heeringen 1992; Theunissen 1999). There are evident methodological problems involved and reconstructed

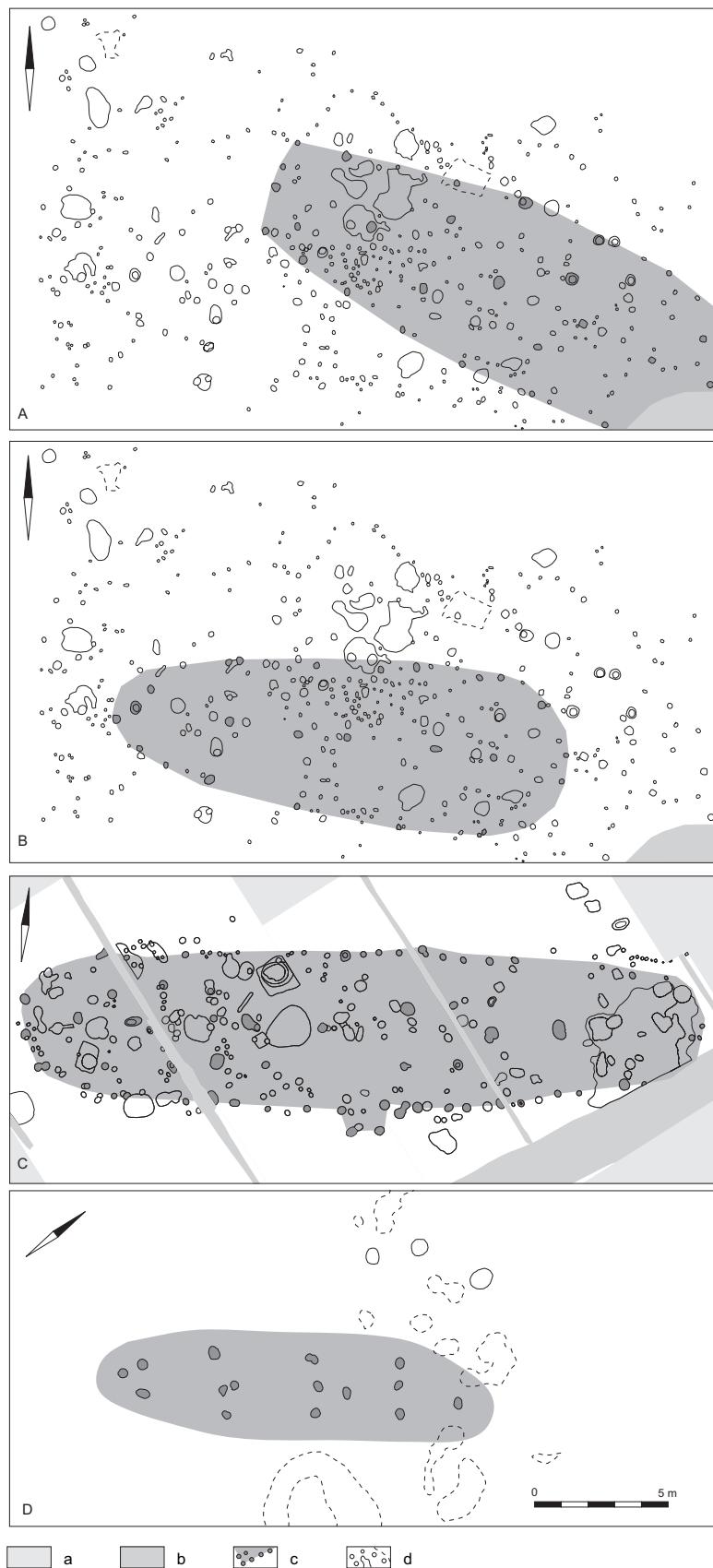


Fig. 2.10 Possible Early Bronze Age houses from Molenaarsgraaf (A, B), Noordwijk (C) and Bocholt (D); (after Louwe Kooijmans 1974, fig. 62; Van Heeringen, Van der Velde and Van Amen 1998, 22, fig. 11; Deiters 2004, 500, fig. 1). Legend: a: Not excavated; b: Recent disturbances; c: Features associated with house; d: Other features

‘regions’ are prone to be either too small (locu-centricity) or too large (supra-regionalisation) to have any predictive value. Perhaps such studies of regionality are furthermore hampered by the fact that the Low Countries formed a border zone between – elsewhere more uniform – Atlantic, Continental and Nordic spheres of influence. Quite possibly, these frontier zones – aided by the easy and fast riverine communication channels – provided a markedly more complex (change of) regional style(s) than in the Atlantic, Nordic and Continental ‘heartlands’.

## Characteristics of Bronze Age houses in the Low Countries

The objective of the next section is to present criteria that can be used to judge the presentation of house plans and settlement site data in the remainder of this book. For the data we draw on earlier work of Fokkens (2001) and on the dissertation of Arnoldussen, to be published in 2007 (Arnoldussen in prep.).

### *The Early Bronze Age house*

Although for several sites the presence of Early Bronze Age houses has been claimed (Fig. 2.2)<sup>2</sup>, their structure is often unclear and their dating indirect. In our opinion, so far only the sites of Molenaarsgraaf, Noordwijk and Bocholt have yielded reasonably acceptable ground plans. The houses at these three sites share a roof-bearing construction that relied on ridge posts that carried much of the weight of the roof, *i.e.* a two-aisled building tradition. The general structure is comparable, but in many other aspects they are quite different.

First, it should be noted that the two houses from Molenaarsgraaf are relatively different from each other (Louwe Kooijmans 1974, 197–202; 1993, 84; Fig. 2.10). The 17.4 m long ground plan of house one displays a two-aisled structure, but some outer posts have also been assigned to the plan. It is unclear whether these represent part of the wall proper, or whether the wall needs to be reconstructed beyond these. Of house two, a line of roof-bearing posts and several possible wall posts have been preserved. Although generally of a two-aisled plan, two pairs of roof-bearing posts (*c.* 2.8 m apart) suggest a partially three-aisled structure of the house. The dating evidence for both houses is indirect, and predominantly relies on the types of pottery (Late Veluwe Bell Beakers and Barbed Wire stamp decorated ceramics) recovered from the site, together with five radiocarbon dates for bone and charcoal. Both pottery, as well as the radiocarbon dates, allow for a dating of this site somewhere in the last centuries of the Late Neolithic or in the Early Bronze Age, *i.e.* around 2000 BC.

The house of Noordwijk shows a distinctly different plan (cf. Van der Velde, this volume). Here, ample possible wall posts have been preserved and seem to indicate a

curvilinear to somewhat ovoid plan. The plan is assumed to have been two-aisled, but among the various posts in the central part no evident ridge posts are identifiable. In one of the reconstructions, several paired roof-bearing posts are reconstructed, suggesting a combined two- and three-aisled plan (Jongste *et al.* 2001, 5). Dates for this house are also indirect. Six radiocarbon dates for botanical macrofossils and from peat are known (Van Heeringen *et al.* 1998, 38–42) and – save for a single Hilversum style decorated sherd – all ceramics recovered fit well within the corpus of known Early Bronze Age ceramics.

At Bocholt (D), a ground plan of a house of 14 to 16 m by minimally 4.5 m wide was discovered. The placement of the roof-bearing posts suggests an essentially four-aisled structure (Deiters 2004, 500), as the ridgepoles and ‘paired’ sets of roof-bearings are found on the same line at three to four metres longitudinal distance from each other. The dating is based on a charcoal sample from a posthole and the association to three nearby pits – two also radiocarbon dated – yielding a Barbed Wire stamp decorated pot and sherds from other comparably decorated vessels (op. cit., 501–502).

The plans discussed above are by no means ‘ephemeral’ and represent a building practice of erecting large houses in a tradition that relied on dug down posts. Nonetheless, the structure of their ground plan can certainly be labelled ‘irregular’. It is easily understandable that if two of such houses overlap, or are overlain by later structures, they can no longer be recognised with any degree of certainty. This, combined with the fact that the houses rarely yield any datable finds, might account for the small numbers in which they are currently known. Yet despite these arguments, it remains enigmatic why in large-scale projects such as at Angelslo-Emmerhout, Oss, Someren and Wijk bij Duurstede no clear ground plan datable to the Early Bronze Age could be recognised. Within such larger projects, Early Bronze Age remains are typically found in (clusters of) pits (e.g. Rhenen: Van Hoof and Meurkens, this volume) or wells, which frequently yield no high density of other features in their direct vicinity.

A possible explanation might be that the domestic structures from the Early Bronze Age in the regions beyond the coast and inland peat district are not situated on the same (types of) location(s) where the pits with diagnostic pottery are recovered, or alternatively that the tradition of house building in the other areas did not rely on dug-down posts, but made use of sleepers or perhaps altogether different methods of housing.

The rather irregular nature of possible Early Bronze Age houses in the Low Countries forms a contrast to the neighbouring regions. The Scandinavian ground plans of for example Hemmed (Boas 1991; Rasmussen 1991), Limensgård (Nielsen and Nielsen 1985; Nielsen 1999) and Kvåle (Børshøj 2005) show a ground plan that can justly be classified as a regular two-aisled building tradition (cf. Boas 1983; 2000; Nielsen 1997; Ethelberg 2000; Artursson 2005). Here, the outer posts presumably

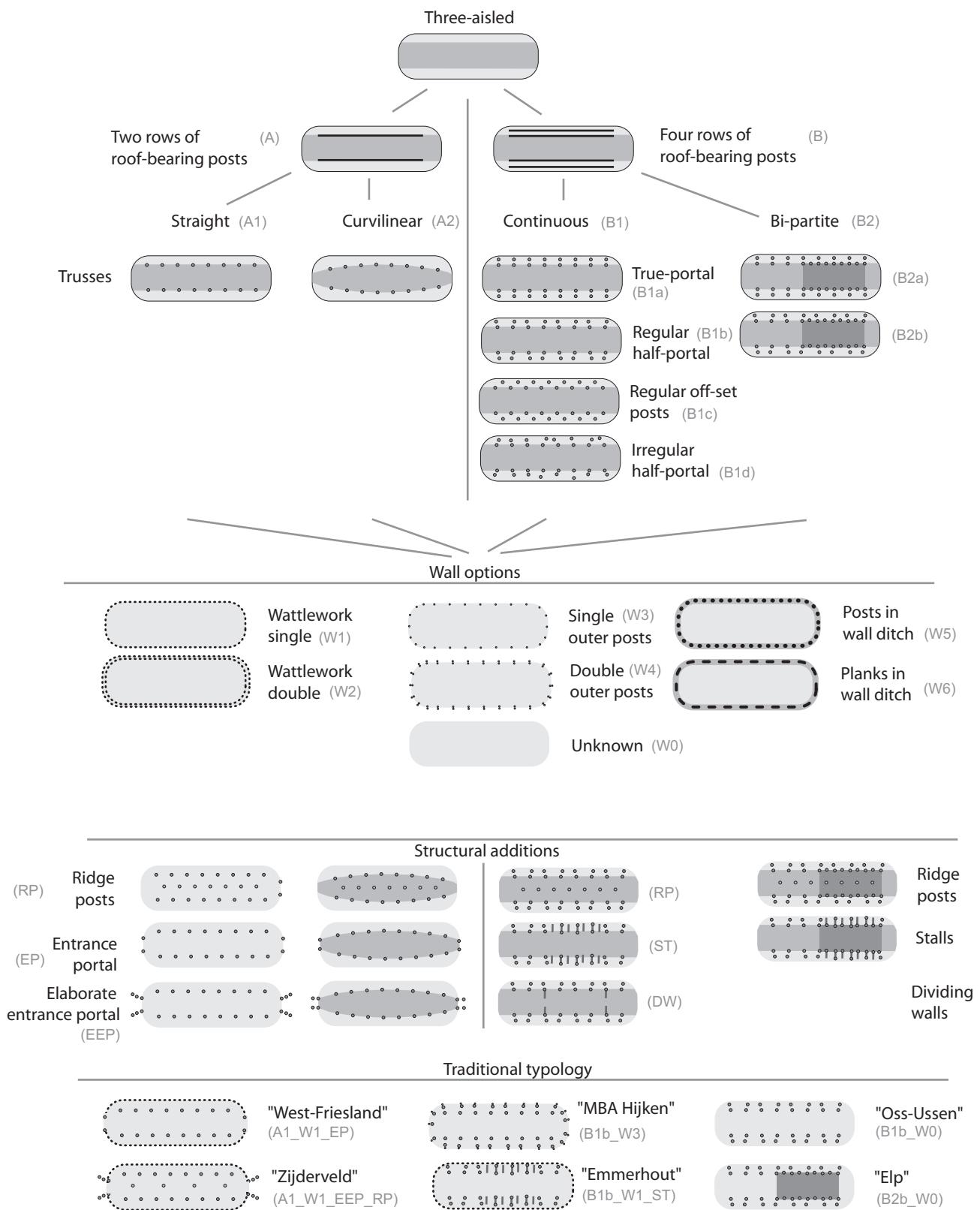


Fig. 2.11 Typology of Middle Bronze Age houses, classification by roof-bearing structure, additions and wall-types (after Arnoldussen in prep.; traditional types indicated at the bottom)

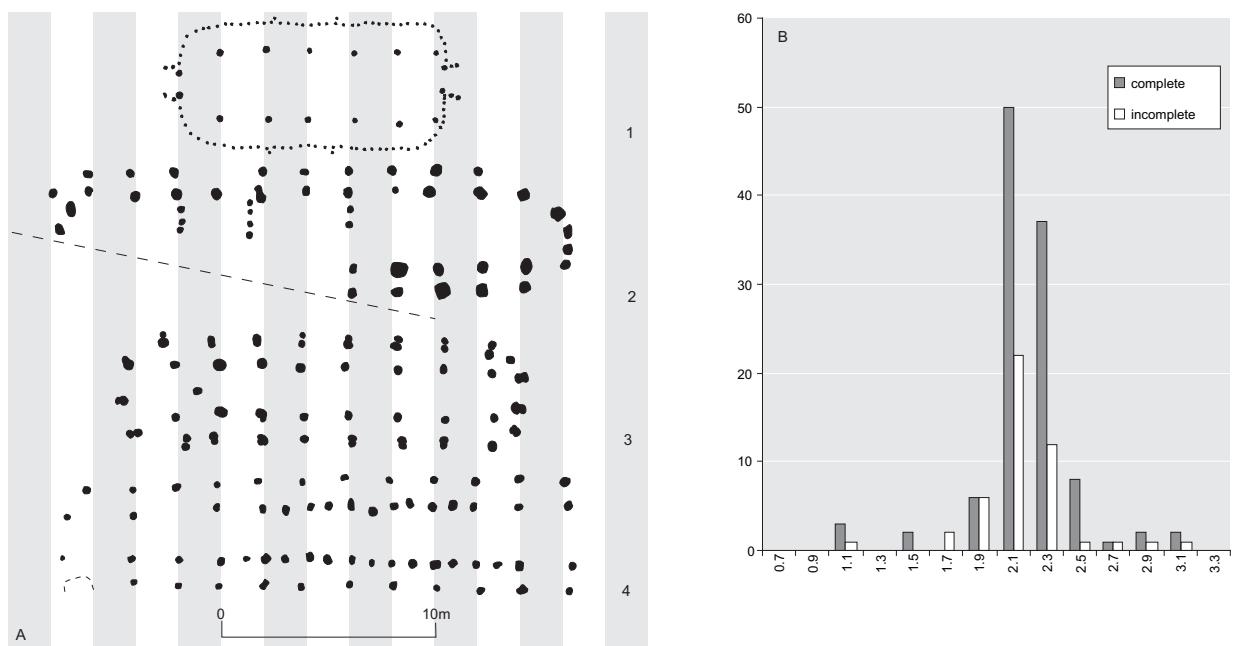


Fig. 2.13 An example of the regular placement of posts for Middle Bronze Age houses from various regions. Legend: A: Houses (1: Zijderveld; 2: Venray; 3: Hijken; 4: Elp) B: Histogram with mean spacing in m for 111 complete and 47 incomplete Middle Bronze Age houses

carried a considerable part of the weight of the roof. The Early Bronze Age house plans in the southern parts of Germany and the adjacent central west European area, also display a more regular, two-aisled building tradition in which densely spaced outer posts carried part of the roof-burden.<sup>3</sup> The ground plans from the Low Countries do deviate distinctly from this tradition of buildings with large numbers of substantial (wall)posts to carry part of the roof-weight. Apparently, the building techniques for the Early Bronze Age buildings in the Low Countries show less regularity and less internal coherence than those in other parts of the northwest European plain, while the factors behind this variation remain currently unknown.

### The Middle Bronze Age house

For the first three centuries of the Middle Bronze Age in the Low Countries (*i.e.* 1800–1500 BC / Bronze Age-A), the evidence for domestic structures is even scantier than for the preceding Early Bronze Age. We believe that the claims for Middle Bronze Age-A houses on the sites of Wijk bij Duurstede and Dodewaard (Fokkens 2001, 252), Zwolle (Verlinde 1993, 36), Meteren (Meijlink and Kranendonk 2002; Meijlink, this volume) and Boekel (Arts and De Jong 2004) hold no ground, because either their ground plan is unclear or the dating evidence is lacking.

A recent overview of the available direct (construction wood) and indirect dates (organic remains from postholes) for the Dutch Bronze Age houses (Bourgeois and Arnoldussen 2006; Arnoldussen and Fontijn 2006) shows that

in the Low Countries no houses can reliably be dated to the Middle Bronze Age-A. Moreover, the reliable direct dates seem to suggest that the recognised houses all date from c. 1520 BC onward, or in more general terms, date to the Middle Bronze Age-B (Fig. 2.10). This does, however, not mean no houses were built during the Middle Bronze Age-A. But the sites that we know show only clusters of pits or posts that cannot be grouped into clear structures. Apparently in this phase between the Early Bronze Age and the Middle Bronze Age-A, structures became archaeologically less visible. A similar phase of reduced archaeological visibility occurs at the transition from the Late Bronze Age to the Early Iron Age houses. In both cases not only a change in house plans occurred, but possibly also fundamental changes in economy and society may have taken place (Fokkens 1997; 2001; 2005; cf. Fokkens and Arnoldussen, this volume).

The contrast between the two periods becomes clear if one realises that for the period between 2000 and 1500 BC only three, and for the subsequent 500 years over 300 reliable house phases are known (Arnoldussen *in prep.*). This large data set allows for substantiated generalizations on the nature of the houses from this period. In essence, Middle Bronze Age-B houses are regular, three-aisled farmhouses, in which two or four longitudinal rows of posts carried most of the weight of the roof.

The observable regularity is a consequence of the placement of the roof-bearing posts at a mean of 1.9–2.3 m distance from each other in the lines of roof-bearing posts (*i.e.* the spacing). This regular spacing of the roof-bearing

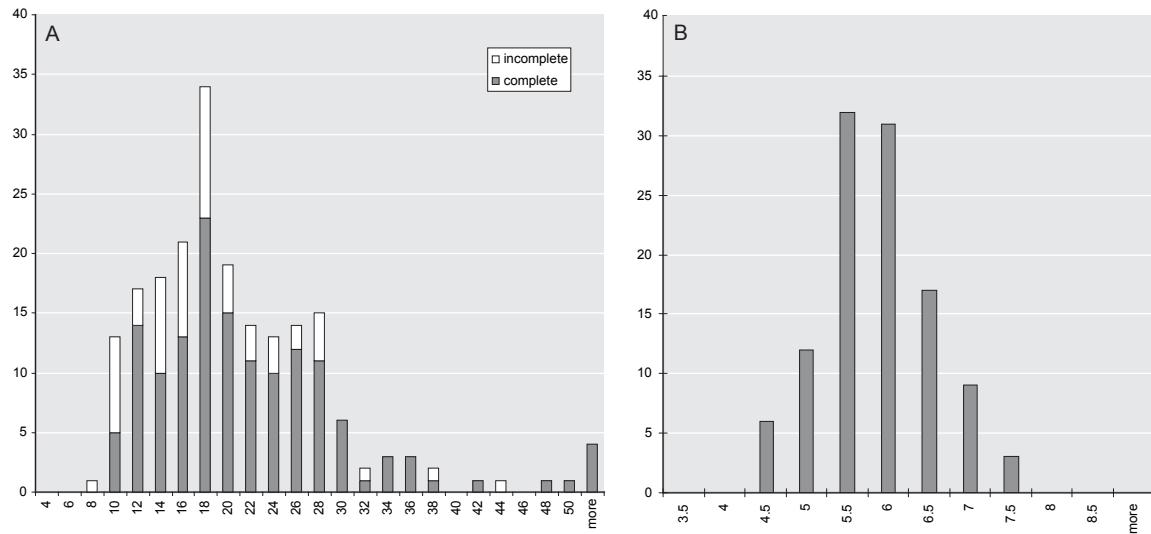


Fig. 2.14 Histogram showing the lengths (A: n=144 complete and 58 incomplete) and widths (B: n=110) in meters for Dutch Middle Bronze Age houses where these dimensions could be documented (after Arnoldussen *in prep.*)

posts applies to all areas of the Low Countries and is in fact one of the most important criteria for the recognition of reliable Middle Bronze Age (-B) house plans.

The length of the houses varies (Fig. 2.14). It becomes increasingly clear that the average length is around 20 m, although many houses of more than 25 m in length are known. The few extremely long houses from the northeastern part of the Low Countries are the result of recurrent extending of the house (for example Dalen and Angelsloo-Emmerhout: Kooi, this volume).

Due to the often poor preservation of wattle and daub or sods walls, the exact width of many farms is unknown. If traces of the walls have been preserved with farmhouses with two lines of roof-bearing posts, these are generally situated at 0.9 to 1.5 m outside of these. From these observations the width of houses of which only the roof-bearing posts are preserved can be estimated. The average width is 6.8 m, houses wider than 7.5 m do not occur.

For the construction of the walls several options were available, but single or double rows of stakes (indicating wattle work) or wall trenches (with upright wooden boards) are the only ones that have moderate archaeological visibility (see Fig. 2.15). Where four rows of roof-bearing posts are present, like for instance in Oss (Fokkens 1991), this does not mean that the outer row indicates the largest width of the house. In a few cases of very good preservation it is evident that a wall of smaller postholes or stakes indicating wattle and daub techniques ran outside the outer roof-bearing posts.<sup>4</sup> With houses of the Middle Bronze Age Hijken type, the outer posts are doubled. A plank or wattle and daub wall was most likely fixed between these doubled outer posts.

Because generally the top 30 to 40 cm of the original surface has disappeared in the present-day ploughsoil, floor levels have not been encountered in Bronze Age houses in the Low Countries. Even the location of the hearth is

usually unknown, or at best based on soil-discolorations due to heating of the soil underneath a hearth (cf. Jongste, this volume; Knippenberg, this volume; Kooi, this volume).

It would be plausible to assume that for the same reason stall partitions are usually not preserved. However, some houses with clear stall-partitions are known, but these all originate from the northeastern part of the Low Countries and from Scandinavia (e.g. Rasmussen 1999). In the Dutch river area and in West-Friesland – regions with excellent feature preservation – no stall partitions have been discovered, nor in the regions south of the Meuse. Therefore it is suggested that creating archaeologically visible stalls is an essentially Nordic tradition. Only three sites in the southern part of the Low Countries have yielded some traces similar to those of the northern stall partitions, yet these are nearly all situated in the centre aisle and represent partition walls rather than stalls (Oss: Fokkens 1991; Loon op Zand: Roymans and Hiddink 1991; Venray: Krist 2000).

At several sites phosphate mapping has been applied in order to detect indoor cattle stalling, but with generally inconclusive results (cf. Smit and Verbauwene 2002a; 2002b; Oonk 2005). Neither has the analysis of the distribution of finds in the find layer overlying Bronze Age houses yielded any conclusive results. Here the problem is of interpretive nature: some researchers argue that the highest densities of finds ought to be visible in the byre, others that the highest density indicates the living area. Neither interpretation can be conclusively deducted from archaeological observations.

After the initial construction phases, c. 35 % of the houses were later on consolidated or repaired (Arnoldussen *in prep.*). Usually, this brought about no major changes to the overall-structure of the house and predominantly concerned the replacement or addition of roof-bearing posts. In the northern and northeastern part of the Low

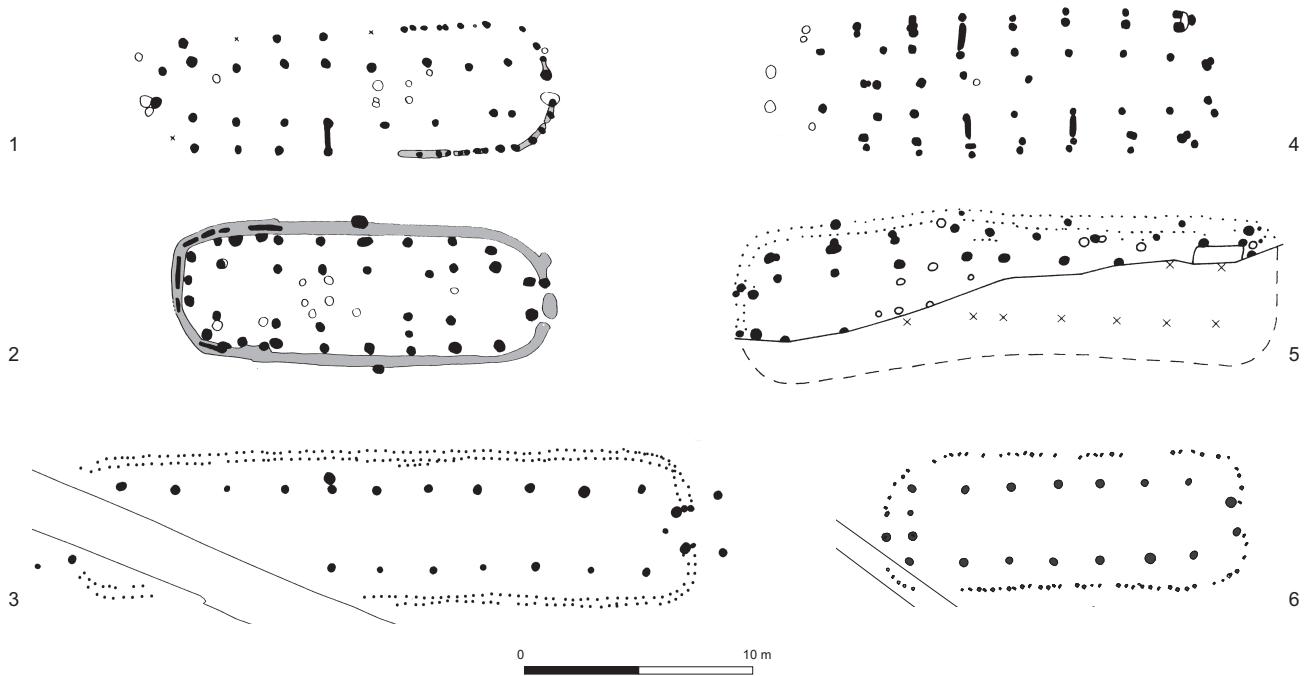


Fig. 2.15 Examples of wall construction options for Middle Bronze Age farmhouses in the Low Countries.

Legend: 1: Posts in foundation trench (Angelsloo: Huijts 1992, 36, fig. 23); 2: Planks in foundation trench (Angelsloo: Huijts 1992, 38, fig. 24); 3: Double wattle work (Zijderveld: Jongste and Knippenberg 2005, 43, fig. 6.9a); 4: Double posts (Hijken: Huijts 1992, 38, fig. 25); 5: Double wattle work and posts (Vasse: Verlinde and Theunissen 2001, 166, fig. 4a); 6: Single wattle work (Dodewaard: Theunissen 1999, 143, fig. 4.15)

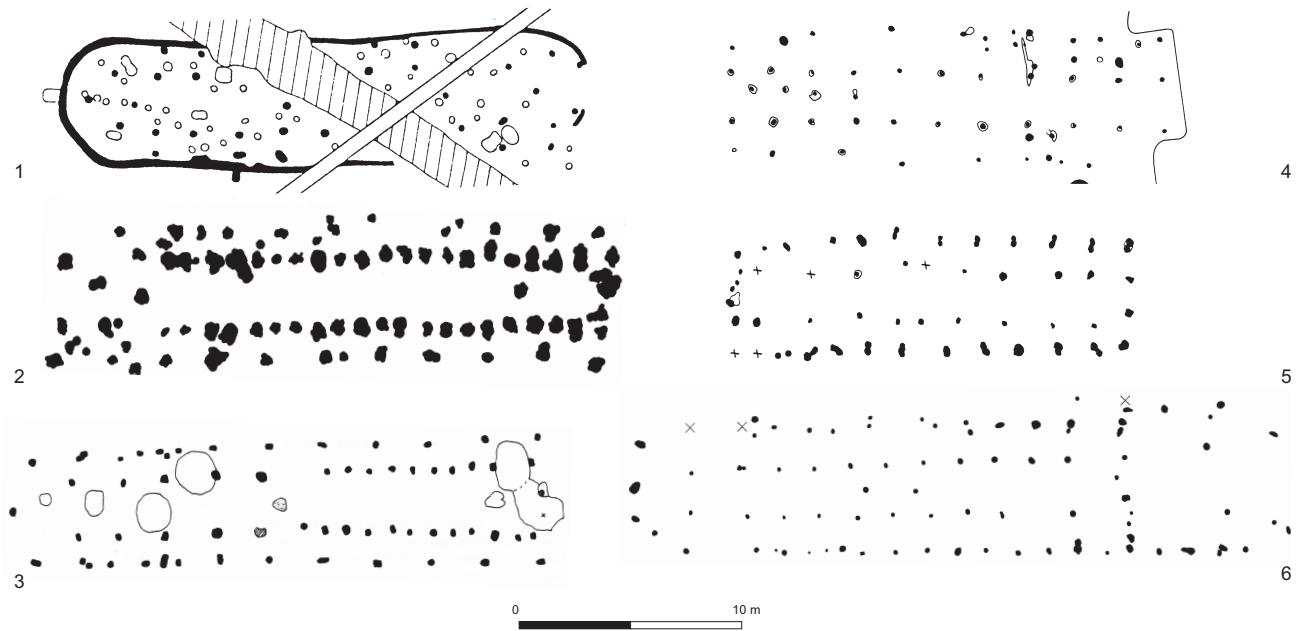


Fig. 2.16 Late Bronze Age houses from the northeastern part of the Low Countries. Houses presumably from the first (1-3) and second (4-6) part of the Late Bronze Age.

Legend: 1: Roden: Harsema 1993, 47, fig. 2; 2: Daverden: Precht 2004, 398, fig. 1; 3: Elp: Huijts 1992, 56, fig. 43; 4: Leesten: Fontijn 1996, 39, fig. 3; 5: Raalte: Groenewoudt, Deeben and Van der Velde 2000, 21, fig. 6; 6: Dalfsen: Van der Velde, Van Benthem and Bloo 2001, 12, fig. 6

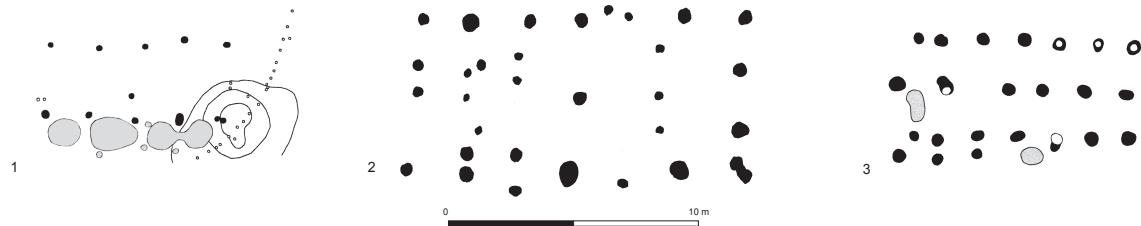


Fig. 2.17 Late Bronze Age houses from the southern part of the Low Countries. Houses presumably predominantly from second part of the Late Bronze Age. Legend: 1: Tiel: Hielkema and Hamburg, this volume; 2: Boxmeer: Van der Velde *et al.* 1998, 23, fig. 3.8; 3: Sittard: Tol and Schabbink 2004, 27, fig. 15

Countries, some houses (*c.* 31 %) were repeatedly extended which led to houses of extremely large size (cf. Kooi, this volume), although it is questionable whether the older parts were still left standing or even inhabited. The life span of Middle Bronze Age farmhouses is relatively unclear. Often 25–30 years is quoted for wood durability and used as a measure for the life span. This conveniently coincides with about one generation of family life. In these estimates, however, no allowance is made for sheltered wood, counter measures against wood rot or repairs (Zimmermann 2006). Recent calculations based on <sup>14</sup>C-dates of posts at Eigenblok and Zijderveld seem to indicate that a life span of 50 years is far from impossible (Jongste, this volume; Knippenberg, this volume; Arnoldussen in prep., chapter 3).

### The Late Bronze Age house

The evidence suggests that the Middle Bronze Age-B tradition of building continued in some regions well in the Late Bronze Age (*c.* 1050–800 BC), but that during the Late Bronze Age there is much more regional variation in house construction techniques (Fig. 2.16, 2.17). Some houses dated to the start of the Late Bronze Age are still predominantly three-aisled in ground plan, but the former spacing of the roof-bearing posts is not always rigidly adhered to. Furthermore, there appears to be much more variation in types of wall constructions and roof-support. Near the end of the Late Bronze Age houses more comparable to those of the Early Iron Age (*c.* 800–600 BC) emerged. These illustrate a radically different building tradition with wall ditches, alternative roof-bearing structures and entrances placed opposite in the long sides of farmhouses that are now invariably rectangular in shape.

For the northeastern part of the Low Countries, it has been suggested that the houses of the Elp type date to the Middle Bronze Age as well as to the Late Bronze Age (Huijts 1992, 55–66). Although no direct dates are available for Elp type houses, the charcoal from pits and the terminus post quem date of charcoal from postholes suggest that this type of house was constructed between the 12th to 10th century BC (Kooi, this volume). Also, occupation at several sites in West-Friesland may have lasted from the Middle Bronze Age-B into the Late Bronze Age, but as houses were during the latter period constructed on

(erosion prone) raised dwelling mounds, no traces of the houses proper are preserved.

From the central river area one Late Bronze Age house is known whose dating is based on both radiocarbon dates and pottery analysis (Hielkema and Hamburg, this volume; Arnoldussen 2006). Several possible Late Bronze Age houses are known from the eastern Netherlands, but only the houses of Dalfsen and Raalte have radiocarbon dates that indicate their construction in or after the 9th century (Van der Velde *et al.* 2001; Groenewoudt *et al.* 2000).<sup>5</sup> For the southern Netherlands, the house plans claimed to date to the Late Bronze Age form a very diverse and difficult to date group.<sup>6</sup> Most dates are based on associated ceramics and seem to indicate a dating to the second half of the Late Bronze Age or even in the Early Iron Age for most houses. Only a charcoal sample from the posthole at Sittard-Hoogveld was radiocarbon dated to the 10th or 9th century BC (Tol and Schabbink 2004).

### The Bronze Age farmstead

So far, we have discussed only house types, but there was no reference to farmyards, outbuildings or the lay-out of the farmstead proper. The farmstead is a concept used here for describing the built-up environment around farmhouses (cf. Roymans and Fokkens 1991, 10–11; Theunissen 1999, 112). In this sense, the concept can be taken to indicate a ‘structured house site’. Throughout the book the term farmstead is only used if there are clear indications for a structured built-up area around, and related to, the farmhouse. Otherwise the more neutral term house site is used (see Arnoldussen in prep., chapter 3).

Within the context of a study of the structure of Bronze Age farmsteads from the river area, the first author will publish a methodology for the analysis of house site structure (Arnoldussen in prep., chapter 6), but here a few preliminary results are already presented. The most important of these, is the observation that there by no means was a uniform structuring of Bronze Age house sites at any given spatial level (*i.e.* settlement site level, regional level, national level). Even within a single settlement site where multiple house sites could be recognized, the structuring of the individual house sites shows considerable

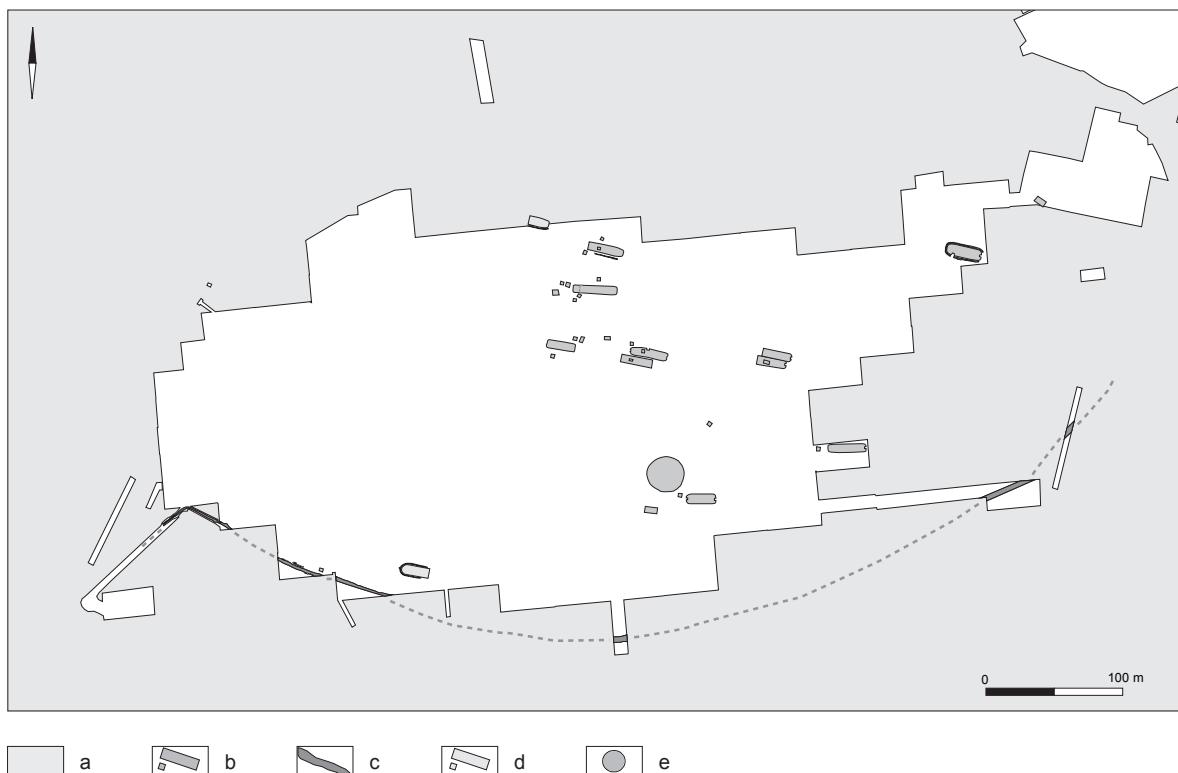


Fig. 2.18 Wijk bij Duurstede: an example of a Bronze Age settlement site from the river area (after Hessing 1991, 43, fig. 2).  
 Legend: a: Not excavated; b: Bronze Age structures (houses and outbuildings); c: Bronze Age ditches; d: Possible Bronze Age structures; e: Possible Bronze Age barrow

differences.

Yet, there are still some patterns discernable. Firstly, four-, six- and nine-post outbuildings ('granaries' or Dutch: 'spiekers') are frequently present at a house site, although in West-Friesland circular ditches (Buurman 1996) appear to substitute the granary type outbuildings of other regions. The outbuildings are normally located at a short (*c.* < 30 m) distance from a farmhouse and usually conform in orientation to it. In addition, if these are replaced, they are usually rebuilt in the same zone – or even on the same spot – and with a still corresponding orientation (cf. Knippenberg, this volume). Secondly, fence lines which are often used to recognize or delimit farmyards, show no consistent placement, shape or orientation in relation to the farmhouses. This might imply that these were not instrumental in the Bronze Age farmers' definition of their house sites. Thirdly, pits and wells do not show a structural spatial relation to the farmhouse either. Rather, pits often show a relatively even distribution across the settlement site space (but see Van Hoof and Meurkens, this volume), whereas the location of wells is more guided by natural factors such as the presence of good aquifers.

Lastly, an array of more rare features such as palisades (Meijlink, this volume; cf. Therkorn, this volume), burnt patches (Jongste, this volume) or cattle paths (*ibid.*) and drinking pools (Knippenberg, this volume) are found next to Bronze Age farmhouses, but their small numbers render

it unlikely that these were quintessential elements of a prehistoric house site. Essentially, Bronze Age structuring of the house site is mostly only visible in the (re)building of outbuildings with an orientation corresponding to that of the farmhouse (Arnoldussen *in prep.*).

The rebuilding of outbuildings in relation to farmhouses could indicate that a preset house site structuring was adhered to over time. There is another source of evidence in support of this. Some house sites had their houses rebuilt, on the same location, with a nearly identical orientation and ground plan. Although this seems a more current feature of house sites on the creek ridges of West-Friesland and the river area (*c.* 16 % and 10–17 % respectively: Arnoldussen *in prep.*, chapter 5), it is certainly not confined to these regions. Perhaps the frequent extending of houses in the northern parts of the Low Countries (*c.* 31 %: *ibid.*), should also be interpreted as reflecting a desire to maintain long-time occupation of a given house site.

## The Bronze Age settlement sites

Whereas we have argued above that defining Bronze Age farmsteads is difficult, defining Bronze Age settlements is even harder. A settlement implies the presence of multiple households that interacted socially (cf. Fokkens 1996, 209; 1999, 31; Gerritsen 2003, 109–115), which – to a

certain degree – implies the proximity of co-residents (cf. Wesselingh 2000, 20; references to Hingley (1989, 180) and Roberts (1996, 24)). Archaeological correlates of such social ties are, understandably, hard to come by. Yet, a number of approaches might offer some insights.

In order to interpret the presence of two or more Bronze Age house sites as a settlement, their contemporaneity needs to be assessed. Usually, the resolution of the methods applied (radiocarbon dating, typochronology of artifacts) does not present conclusive evidence in favour of – or against – contemporaneity. Consequently, multiple house sites can generally also be interpreted as reflecting a system of periodically shifting, isolated habitation (wandering farmsteads). Therefore, systematic and – as direct as possible – dating of house(site)s should be undertaken wherever possible.

In absence of, or in addition to, the presence of ample radiocarbon dates, the orientation of the houses within the systems of orientation of the wider (built-up) cultural landscapes might be informative. It could be that the corresponding orientation of multiple house(site structure)s of a settlement site, such as at Zijderveld (Fig. 2.8), indicates that these were once incorporated into a single (contemporaneous?) system of settlement site structuring. For other sites, where only the deepest features have been preserved, a shared orientation of houses could also hint at contemporaneity, but this is never conclusive.

Often the site of Bovenkarspel (Fig. 2.5; IJzereef 1981; IJzereef and Van Regteren-Altena 1991) is used to illustrate contemporaneity of house sites. But even here it is difficult to assess which ditches belonged to a given phase, as ditches were often recut (Bakker *et al.* 1977, 215) and the overall system could have grown organically over a significant period of time.

Lastly, a communal settlement boundary could facilitate the recognition of prehistoric settlements. Unfortunately, of the over 65 Bronze Age settlement sites, only one has yielded a structure that may once have represented a settlement boundary. At Wijk bij Duurstede-De Horden a one to five meters wide ditch, sometimes lined with fences, can be reconstructed to have girded the multi-house site settlement site for 470 m to the south (Fig. 2.18; Hessing 1985, 21).

To sum up, the archaeologically preserved relicts of former Bronze Age settlement sites do not easily allow the definition of settlements. For the time being the observed patterns show a reasonably dispersed system of house sites and little nucleation. The distance between the house sites appears to be bigger between sites in the southern parts of the Low Countries, sometimes smaller in the northeastern parts and seems to be smallest in the river area and the West-Friesland creek ridge landscapes (cf. Theunissen 1999, 192, 194–195). Yet, without high-resolution dating evidence, it remains unclear whether shorter inter-house site distance represents larger real prehistoric domestic agglomerations, or conversely a prolonged – or even discontinuous – use of the same settlement site.

The differences in occurrence of isolated, extended, rebuilt and overbuilt house(site)s observable for the various regions in the Low Countries, does stress the importance of interpretations that allow for regional variation and particularities in the settlement system in order to go beyond the mere application of a seemingly ‘universal’ model of ‘wandering farmsteads’.

## Conclusions

To sum up, we would like to stress once more that systematic attention to Bronze Age settlement sites in the Low Countries is as much worthwhile as it is needed. Archaeologists need to break away from a historical tradition of considering settlement sites solely as a ‘self-explanatory’ backdrop for other human activities in the past. We have suggested that our knowledge of the three main spatial levels; those of the house, the house site and that of the settlement site, is rather imbalanced. Whereas houses are known in great numbers and can be understood reasonably unproblematic, our knowledge on the level of the house site and the settlement site is much more limited. In too few instances have the results of settlement site excavations been directly confronted with hypotheses on the nature and dynamics of the settlement sites themselves.

We hope to have shown that this relative paucity of integrative studies on Bronze Age settlements is in stark contrast to both the quantity as well as the quality of the data set available. The over 65 settlement sites known currently in the Low Countries provide a generally extensively researched and predominantly well-published corpus. Data from both upland and wetland environments can be compared. Yet even in this large and well-documented data set, for some regions or periods we have shown that our knowledge is rather limited. The scarcity of houses from the Early Bronze Age and Middle Bronze Age-A are a case in point, as is our relatively limited knowledge on the nature of the Bronze Age occupation on the coast and in the inland peat areas.

With this brief introduction, we hope to have outlined both the excellent quality, as well as some of the regional variations in the data set. In essence, there is much information on the everyday life of Bronze Age communities in the Low Countries reflected by – and obtainable from – the remains uncovered in their settlement sites, just waiting for methods to be applied and questions to be asked. We hope that this volume acts as an incentive for such questions to emerge.

## Notes

- 1 In 2003 Lanting and Van der Plicht published a new overview of radiocarbon dates for the Bronze Age. They suggest a partially revised periodisation, based on the desire to use the south-German system of periodisation for the Netherlands.

Although this is essentially a laudable approach, it is also prone to overlook regional differences. To use, for instance, Swiss and south-German lake shore dendrochronological dates for the Fr. Br. A2 ending, as the end date for Dutch 'Barbed Wire' stamp decorated beakers (Lanting and Van der Plicht 2003, 131, 153), seems unnecessarily far fetched. In this volume, therefore, the 'traditional' chronology as it is used in The Prehistory of the Netherlands (Louwe Kooijmans *et al.* 2005) is used.

- 2 Hielkema and Hamburg, this volume; Van Hoof and Meurkens, this volume; Meijlink, this volume; Verlinde 1984; 1993; Van Beek and Wevers 1995; Waterbolk 1995; Jongste 2001; Meijlink and Kranendonk 2002. See for a more extensive discussion Arnoldussen in prep., chapter 5.
- 3 E.g. Zwenkau, Bopfingen, Eching, Franzhausen (Thieme 1985; Krause 1997; Stäuble and Campen 1998; Neugebauer 1998; Nielsen 1999; Schwarz 1996; Schefzik 2001).
- 4 Notably Emmerhout house 13 (Waterbolk 1975, 387) and Vasse (Verlinde and Theunissen 2001, 166).
- 5 The houses of Leesten (Fontijn 1996), Zutphen (Bouwmeester, this volume), Deventer (Verlinde 1991, 35; 2002, 43; Hermans 2003, 70) and possible those of Zwolle (Verlinde 1993; Van Beek and Wevers 1994, 53, 63) might also date to this period.
- 6 Sint-Andries (Bourgeois *et al.* 2003, 265–266), Sint-Gilles (Bourgeois 1991; Bourgeois *et al.* 2003, 270–274), Boxmeer (Van der Velde 1998; Hiddink 2000), Deinze (B, De Clercq 2000), Roermond (Schabbink and Tol 2000, 16), Oss (Jansen and Fokkens 2002, 321), Beugen (Hissel *et al.* 2004, 43), Breda (Koot and Berkvens 2004, 102–116; Berkvens, this volume), Ekeren (B, Minsaer 2004), Sittard (Tol and Schabbink 2004, 27–28), Goirle (Bink 2005) see also Minsear 2004, 112, cf. Zutphen (Bouwmeester, this volume).

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### 3 Houses and barrows in the Low Countries

*Quentin Bourgeois and David Fontijn*

#### Introduction

In the archaeology of Bronze Age and Iron Age Europe, it is often assumed that there were important symbolic relationships between domestic structures and funerary monuments (Bradley 2005, 57–64; Gerritsen 2003). For the case of Northern Europe, it has even been claimed that there was a general parallelism in the organization of ‘the world of the living and that of the dead’ during the Bronze Age (Svanberg 2005, 73). Danish and German barrows built over the remains of ‘true’ longhouses are well-known examples of ‘houses of the living’ supposedly straightforwardly transformed into ‘houses of the dead’ (Rasmussen 1993; Svanberg 2005). But there are also examples from several regions where certain burial monuments are understood as deliberately copying the shape of houses (Bradley 1998, 36–50; Hodder 1992, 45–80; Roymans and Kortlang 1999) or where specific burial mounds are thought to have been the burial place of a particular household (Jørgensen 1988).

A specific relationship between barrows and houses has been identified for the case of the Low Countries during the Middle Bronze Age (1800–1100 BC). Here, burial mounds are thought to have been the burial ground of households and are supposed to be located near the residence of this household. The long-standing Dutch tradition of large-scale settlement excavation and the large numbers of well-investigated barrows seems to provide rich evidence for modelling the relation between houses and barrows. The clearest view on house-barrow relations during the Middle Bronze Age is the one defined by Roymans and Fokkens (1991). In this contribution, we will re-assess their ideas on the basis of a reconsideration of old and

new evidence. Starting with a brief recapitulation of the way in which they model the interrelationships between barrows and houses, we will isolate crucial and verifiable elements. Charting and re-assessing old and new data, we will then investigate whether the evidence is in line with the expectations raised by the model. We will argue that it is not. Furthermore, we suggest that links between barrows and houses in the Middle Bronze age of the Low Countries are rather different than previously thought.

#### Modelling barrow-house relations

Middle Bronze Age Barrows in the Netherlands are typically seen as collective graves and interpreted as ‘family barrows’ ‘to bury a whole (kinship) group in’ (Drenth and Lohof 2005, 446, 451). According to Roymans and Fokkens (1991, 12), burial mounds are thought to have been constructed in the near vicinity of the residence of the household in question. A barrow is thought to have been constructed over the grave of the (male) head of a family, to further facilitate the burial of other members of the household as secondary graves in the flank of the mound (Fokkens 2005a, fig. 20.1). As Middle Bronze Age houses shifted location periodically and as new barrows are believed to have been preferably placed near these houses, true ‘fixed’ barrow cemeteries could rarely evolve according to this model. The famous Bronze Age settlement of Elp, with a barrow close to several houses, is usually seen as case in point (Fig. 3.1; cf. Van Beek 2001, 60; Roymans and Fokkens 1991; Waterbolk 1964; 1987). Only in the Late Bronze Age, true ‘fixed’ cemeteries came into existence, which had the potential to develop into



Fig. 3.1 Elp: traces of houses and flat graves in the immediate vicinity of a barrow with post circle (after Waterbolk 1964, reworked by H. Fokkens 2005b, fig. 18.4). a: post holes of houses & structures; b: other post holes; c: stones; d: pits inside the house; e: other pits; f: graves; g: iron pan formation in and near houses

extensive cemeteries in the course of time: the urnfields (Fokkens 1997; Gerritsen 2003; Kolen 2005, 45, 49). The Middle Bronze Age 'system' of barrow location however, is thought to result in loosely scattered barrows, spread out over extensive parts of the landscape. Gerritsen (2003, 236) sees this as a reflection of a territorial organisation that was, at this time, still only very loosely defined and subject to a considerable degree of change. It is the analysis of this remarkable Middle Bronze Age relationship between barrows and houses in the Netherlands that forms the heart of this contribution. This particular interpretation of the relation between houses and barrows seems to have had a profound impact in Dutch and also Belgian archaeology and may have steered the excavation strategies of commercial excavations. The significance of this model is probably due to the fact that Roymans and Fokkens were the first to perceive links between two kinds of Bronze Age sites usually studied in isolation, settlements and barrows. These links seemed to make sense in terms of a long-term narrative of landscape use (ephemerally scattered barrows as a prelude to fixed, 'stable' urnfields; cf. Gerritsen 2003, 237-244; Roymans and Kortlang 1999; Table 3.1, Fig. 10) as well as in terms of social transformations that are thought

to have taken place in the second and first millennium (Fokkens 1997; 2005). On top of that, Roymans' and Fokkens' hypothesis has the virtue of being testable. Their model of barrow-house interrelations defines clear empirical expectations. These are as follows

- 1 A barrow is the burial place of a household.
- 2 A barrow is situated 'close' to a house.
- 3 The barrow is largely contemporary with this house.

In what follows, we will investigate whether these expectations stand up to scrutiny.

### Was a Middle Bronze Age barrow the burial site of a household?

Dutch Middle Bronze Age barrows are often collective graves. They tend to have one, sometimes more, burials in the centre (primary graves) and several (secondary) graves in the flanks of the mound. Occasionally, flat graves are also placed just outside the mound (Waterbolk 1962, 13-15). Sometimes, one mound boasts many graves, like in the case of "Gammelke", where 34 burials are claimed

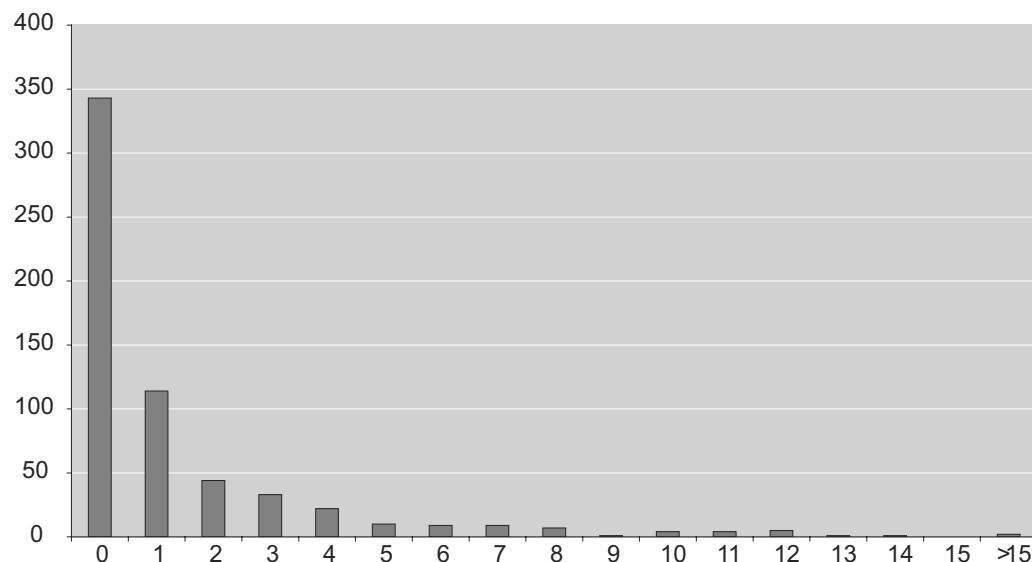


Fig. 3.2 Frequency of secondary interments (X-axis) in an existing barrow from the Late Neolithic up until the Middle Bronze Age. The numbers (Y-axis) are based upon our own database, consisting of more than 600 barrows, from all regions of the Netherlands

to have been detected in one barrow (Verlinde 1973). As collective graves, Middle Bronze Age burial mounds have of old been coined ‘family barrows’, a term still used although most authors now seem to use it loosely as a common denominator for a collective grave (Drenth and Lohof 2005, 446; Fokkens 2003). As the term brings specific expectations with it, we feel it better to drop it altogether for the following reason. It is clear that most barrows contain far too few graves to have incorporated all household or even family members. A survey of published burial mounds shows that a Middle Bronze Age barrow on average contains two secondary graves and rarely more (Fig. 3.2). Thus, barrows with five or more Middle Bronze Age burials do exist but are exceptional. If we accept Fokkens’ idea that Middle Bronze Age farms contained an extended family with 15–20 persons at least (Fokkens 2005a, fig. 20.1) it is evident that a Middle Bronze Age barrow was generally not the place where all members of a household were buried. Data on sex and age could also provide information on whether a household was indeed buried here. Such evidence is rare however, as many burials were inhumation graves in sandy soils where bones did not survive. Analyses of cremated human bone are available, but in numbers still too low to allow generalizing remarks on selection of age and sex of the deceased (N= 87 out of a total of 646 recorded cremation burials).

Interestingly, several barrows contain graves of individuals of both sexes and all ages, as one would expect for a household, but in numbers too low to be significant. Yet, the well-researched Toterfout Halve Mijl barrow group provides us with the intriguing case of mound 8a containing exclusively graves of children (Theunissen 1993, table 1; *idem* 1999, 83). For such a case it is unlikely that a barrow

was the burial ground of a whole household, unless we are willing to accept that it was entirely made up of children. There are also sites in which the primary grave is not that of an adult male, as established views would have it, but of a child (e.g. Bergsham tumulus 3: Lanting and Van der Plicht 2003, 158; Nijmegen-Kops Plateau, mound 2: Fontijn and Cuijpers 2002, 171). Evidence on sex and age of deceased in barrows is still too low to make generalizing statements and results established so far should make us cautious of making any. If anything, the evidence available so far suggests that “the” barrow ritual may have been much more variable and idiosyncratic (Bourgeois *in prep.*).

### Was a barrow situated close to a house?

If the evidence so far does not support the view that Middle Bronze Age barrows were the true burial sites of families, there are however examples of barrows where we might expect that the interments may ‘symbolize’ an entire family (for example, when all age and sex categories are represented among the interred deceased; Fontijn *in press*). The dearth of current information on age and sex categories present in mounds precludes any conclusive general statement on this matter. We should at least keep the option open that a Middle Bronze Age barrow, as a collective grave, may at least have had some sort of conceptual link with specific households (Fontijn *in press*, Theunissen 1999, 107–8). Thus, it remains a vital question whether such barrows are found close to house sites as the Roymans/Fokkens model predicts.

Verifying this on the basis of empirical evidence is, however, quite problematic. Hundreds of barrows have been

Site	Dates for barrow	Dates for settlement	Relation	Remarks	References
Wijk bij Duurstede - De Horden	n.a.	14C, house-typology : MBA-B	unclear	no dates for barrow, no grave	Hessing 1991
Maldegem - Burkel	14C in prep	(14C), house-typology : MBA-B	unclear	14C dates in prep.	Crombé & Bourgeois 1993; Bourgeois, Cherreté & Bourgeois 2003: 245-246; Ampe <i>et al.</i> 1995: 50
Elp	bronze-typology: MBA-B	14C, house-typology : MBA-B / LBA	barrow presumably contemporaneous	possibly two barrows	Waterbolk 1961, 1964, 1987
Texel - Den Burg	14C, bronze-typology: MBA-B	14C, house-typology : MBA-B / LBA	Barrow possibly earlier	wood from axehaft in grave dated	Woltering 2000; Butler & Steegstra 1998: 173-179
Velsen - Velserbroek	bronze-typology: MBA-B	(14C), house-typology : MBA-B	grave possibly contemporaneous	14C dates in prep.	Bosman & Soonius 1990
Medemblik -	14C: MBA-B	14C, house-typology : MBA-B (LBA?)	barrow possibly contemporaneous	houses possibly MBA-Regteren	Altena & Bakker 1967: 121; Regteren Altena <i>et al.</i> 1977: 250; Lanting & van der Plicht 2003: 186, 198
Weelde	pottery, 14C: MBA-A	14C: MBA-A, (house typology: MBA-B?)	barrow possibly contemporaneous	charcoal from posthole house dated	Annaert this volume; 1998: 30-31; Bourgeois, Cherreté & Bourgeois 2003: 286-287
Angelsloo - Emmerhout	14C: MBA-A, pottery: ??	14C, house-typology : MBA-B (/ LBA)	barrow construction seems to be older. Secondary interment seems to be contemporaneous	older barrows nearby, also secondary interment in older barrows	Van der Waals 1967: 40(120); Van der Waals & Butler 1976: 56
Hijken - Hijkerveld	pottery (LNEO), 14C: MBA-A B + MBA-B	14C, house-typology : MBA-	barrow construction seems to be older. Secondary interment seems to be contemporaneous	older barrows nearby, also secondary interment in older barrows	Harsema 1991, 1992; Van der Veen & Lanting 1991: 223-224; Harsema 1974: 164
Hoogkarspel - Medemblikker Tolhuis	14C, feature relations: MBA-B/LBA	14C, feature relations: MBA-B/LBA	settlement phase younger than barrow	two barrows transformed into settlement mound	Bakker <i>et al.</i> 1977; Bakker & Brandt 1966: 183, 192
Hoogkarspel - Watertoren	14C, feature relations: MBA-B	house-typology, feature relations: MBA-B/LBA	settlement phase younger than barrow	barrow incorporated into settlement system of ditches	Bakker 1966; Bakker <i>et al.</i> 1977: 220; Regteren Altena <i>et al.</i> 1977: 250-257
Geldermalsen - De Bogen	14C, bronze-typology, pottery, feature relations: MBA	14C, house-typology: MBA- (A?)/MBA-B	barrow possibly older? also LNEO and EBA houses claimed		Meijlink & Kranendonk 2002; Lohof 2003; Lanting & van der Plicht 2003: 198-201
Dalen - Huidbergsveld	14C: MBA-A	house-typology: MBA-B	barrow older	distance between barrow and settlement unknown	Kooi 1989, 1991; Van der Plicht 2003: 190, 195
Den Dungen - Kloosterstraat	pottery, 14C: MBA-A	house-typology (?): MBA-B	barrow presumably older	houseplan never published	Verwers 1991
Rumpt - Eigenblok	(14C): (EBA)/MBA- A. unreliable association	14C, house-typology : MBA-B	barrow presumably older	no grave, pit underneath barrow dated	Jongste & Van Wijngaarden 2002 / Jongste 2002: 35 / Lanting & Van der Plicht 2003: 197

Table 3.1 Excavations with evidence of barrows and houses from the MBA. Altered after Bourgeois/Arnoldussen 2006, table 1

excavated in the course of time and several hundreds of Middle Bronze Age house plans are known. But, whereas the remains of houses tend to be found during large-scale excavations from the 1960s onwards, most barrows were excavated before that time. Barrow excavations on the one hand, usually did not exceed in the area beyond the barrow. Settlement excavations, on the other hand, tend to be limited to the identification of house plans. Excavation rarely extended into the zones beyond the houses. It should also be realized that many Middle Bronze Age barrows, especially in areas with plaggen soils (essen) may have been levelled and cannot be detected by any other method than excavation (e.g. Mierlo-Hout: Tol 1999). The precise relation between houses and burial mounds has clearly not been adequately investigated at all. There are only 15 published excavations where traces of both houses and barrows dating to the Middle Bronze Age were found in one excavation or where barrows were close enough to an extensive settlement excavation to merit inclusion in this discussion. These sites are listed and further described in Table 3.1. This table includes all sites that potentially provide opportunities for investigating the spatial and chronological relations between Middle Bronze Age barrows and houses. It should be emphasized that only sites where convincing Middle Bronze Age-Late Bronze Age house plans were observed are included. Excluded are sites with barrows and features usually interpreted as 'settlement traces' like Middle Bronze Age posts or pits (e.g. Elst near Rhenen: Hulst 1969; Nijmegen-Kops Plateau: Fontijn and Cuijpers 2002; Nijmegen-Hunerberg: Louwe Kooijmans 1973). Afterall, we have no evidence for what such posts or pits actually represent; it does not follow that every cluster of pits and posthole traces should be interpreted as remains of a farmstead. There is also a small number of excavations where considerable areas around barrows were excavated without yielding traces of houses (Berghem-Zevenbergen: Fokkens *et al.* in press) and many large-scale excavations where traces of houses were uncovered but no barrows (e.g. Oss: Fokkens 1996). Although potentially informative on the relation between houses and barrows in terms of providing evidence of absence, such sites cannot be properly used in this discussion. In a large-scale excavation of a barrow terrain with no evidence for houses, like at Berghem-Zevenbergen, there is still the possibility of a house site just outside the boundaries of the excavation.

### **Were houses placed near barrows, or barrows near houses?**

Table 3.1 summarizes the evidence from excavations where both (traces of) Middle Bronze Age burial mounds and Middle Bronze Age houses were found, as well as the arguments for dating of both houses and barrows. The first remark to be made is that the number of sites which are potentially informative on barrow-house interrelationships is very modest and in no relation to the *c.* 800 excavated barrows and *c.* 220 known Middle Bronze Age house plans

in the Netherlands alone. It goes without saying that no conclusive statements on house-barrow relations can be made on the basis of such a small number of sites. Only 4 out of 15 sites potentially provide evidence that supports Roymans and Fokkens' view that Middle Bronze Age barrows and longhouses were contemporary. For 9 out of 15 sites there is evidence that the barrow in the excavation clearly pre-dates the houses by many centuries. This is also true for the evidence of the extensive excavations in Hijken and Angelslo, but here there are indications that some of those older barrows were again re-used during the period in which people built and inhabited the longhouses here. At both sites, the barrows were in fact situated outside the excavation, but close enough to justify inclusion in our discussion. In Hijken, several of the nearby barrows were built during the Late Neolithic Single Grave Culture, *c.* 2900–2500 BC, but secondary interments in three barrows seem to be contemporaneous with the Middle Bronze Age houses. At Angelslo, the Middle Bronze Age houses were situated very close to two megalithic tombs of the Middle Neolithic TRB culture (Hunebedden) that were already age-old by the time the Middle Bronze Age houses were built. Several barrows were constructed in the environs of these Neolithic monuments, but several were already there when the first Middle Bronze Age houses found in the excavation were built. In both Hijken and Angelslo, houses were thus built near and amidst ancestral burial mounds, but some of these barrows were again used for burial at the time of the Middle Bronze Age longhouses.

### **A house burial?**

The recently discovered burial complex found in Meteren-De Bogen, municipality of Geldermalsen (Meijlink 2001, this volume) is of special interest for our discussion. It might be ventured that here we have indications of a deceased who was buried in the centre of a house which in turn was demarcated by a large ring ditch, typical for barrows. This echoes the 'house burials' recorded in a few Nordic barrows (Svanberg 2005) and would – if we are right in our interpretation – be unique in the Low Countries. It should be emphasized that the De Bogen 'barrow' has been the subject of virulent debate ever since its discovery in 1999. The appendix and Fig. 3.7 give a full overview of the revised chronology and the arguments on which it is based; here we will focus on the relation between Middle Bronze Age burials and Middle Bronze Age settlement traces only. Fig. 3.3 shows the main features involved.

The burials were found in an area that was demarcated by a large ring ditch (D= 16.5 m). Inside this area and around, hundreds of posthole traces were recognized. It is clear that at least some date to the Late Neolithic Bell Beaker phase, including the remarkable find of a pit containing many Bell Beaker sherds as well as the bones of a human foot (!). Arnoldussens re-analysis shows that none of the claimed house reconstructions thought to date to the Neolithic are reliable (in prep.) and this tallies with the views of Lohof

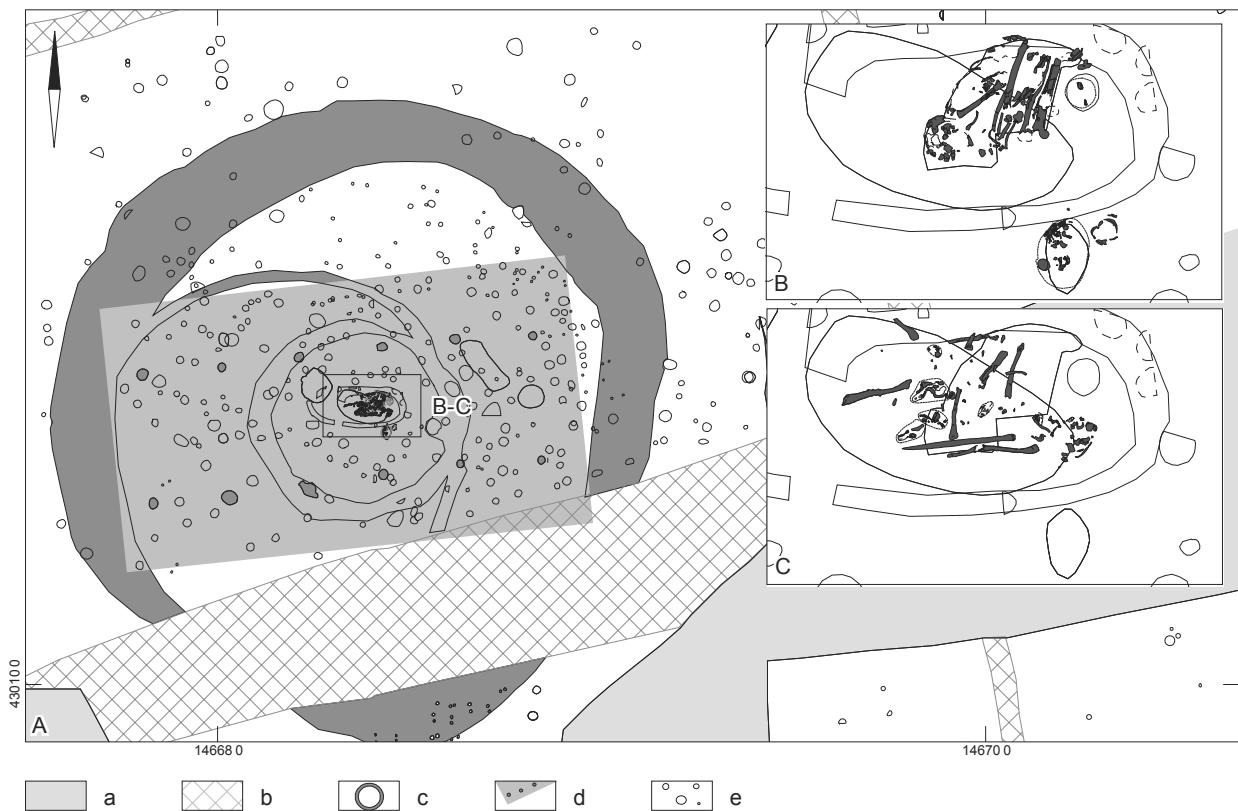


Fig. 3.3 Burials and features at Geldermalsen-De Bogen. (after Meijlink & Kranendonk 2002) Location of house 45HH and graves 1 and 2 (inset B) and 3 (inset C). a. not excavated; b. recent disturbances; c. ring ditch; d. features associated to structures; e. other features

and Lanting and Van der Plicht. Three skeletons (nos 1 to 3) have  $^{14}\text{C}$ - datings that unequivocally support a dating in the later part of the Bronze Age (Fig. 3.7; appendix). No. 1, an adult, probably male, in extreme crouched position is situated in the centre of the area demarcated by the large ring ditch. Skeleton 2, a baby is situated 0.40 m to its southeast. The largely disturbed skeleton 3 was found just on top of no. 1 with a bronze rapier, two bronze arrowheads and fragments of other bronze objects of which the function could not be identified. In the swarm of posthole traces at this location, remains of two houses have been recognized by the excavators: structure HH enclosed by the ring ditch with burial 1, 2 and 3 in the centre of the remains of this house, and structure BH just west of the ring ditch (Fig. 3.3). From their strict regularity and overall similarity to plans of other Middle Bronze Age-Late Bronze Age longhouses, both HH and BH are convincing as remains of true Middle Bronze Age houses (appendix). Several  $^{14}\text{C}$ - datings of fill from posts of both houses support a dating in c. 1500–1300 BC for HH with BH slightly later (Fig. 3.7). HH is of special interest here given its remarkable spatial association with three burials and the enclosing ring ditch. Is it a complete coincidence that the traces of a Middle Bronze Age house are situated precisely within the boundaries of a large ring

ditch, a feature that is a regular characteristic of burial mounds? And is it –again- a complete coincidence that three Bronze Age-dated skeletons are precisely in the heart of this house? We wish to argue here that such a special spatial association of a house, burials and a ring ditch can hardly be coincidental and reflects meaningful relations between house, burials and the ring ditch. This is supported by datings. As remarked, the fill of no less than three posts of HH contained material that was  $^{14}\text{C}$ -dated giving a terminus post quem-dating for the construction of the house.

The combined dating evidence of house and graves are in line with a scenario where an adult (no. 1) and a baby (no. 2) were buried in (the remains of) a three-aisled house, or where such a house was deliberately built over the burials. This took place on a site that already had a remarkable earlier history (the pit from the Bell Beaker period with the remains of a human foot very close to burials 1 and 2; indications for another ring ditch pre-dating the large one but post-dating the Beaker period; see appendix). After which, the area around the house was demarcated by a ring ditch and may have been covered with an earthen mound (at least with the material dug out of the ditch, see appendix). Later, people buried another individual in the

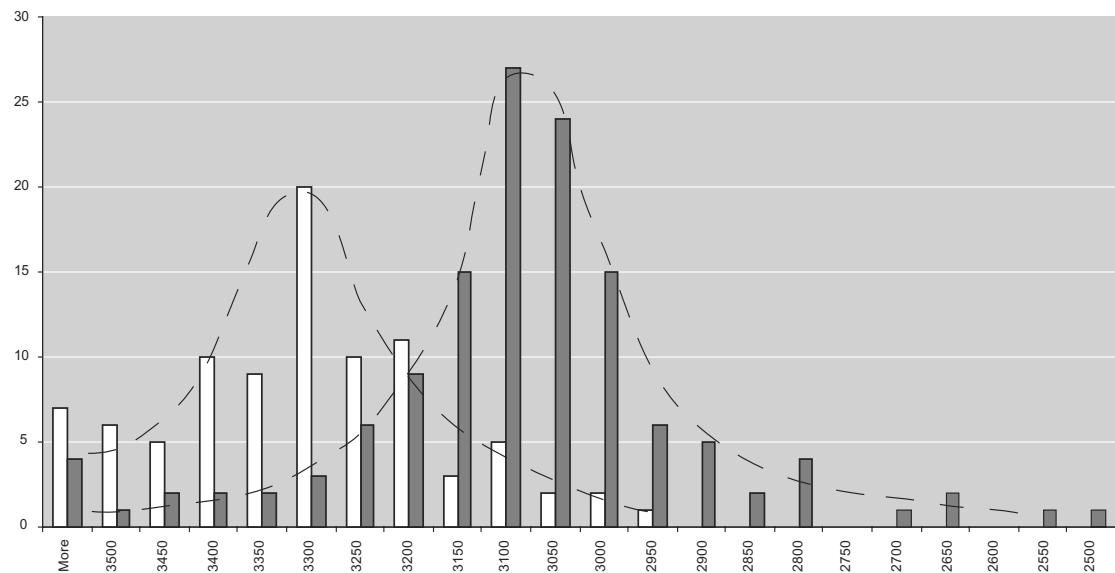


Fig. 3.4 Histogram and trendline of Bronze Age initial barrow phases (light bars) and houses (dark bars) in uncalibrated radiocarbon yrs BP. (after Bourgeois & Arnoldussen 2006, fig 4)

centre of this mound in the same position and just above skeleton 1: burial no. 3, with a.o. a rapier and arrowheads. This grave stands out by its provision with rarely occurring grave goods (cf. Fontijn 2002, 221–37). A pot with handle may have been dug into the mound during this period but its role and its dating remain unclear (see appendix). The barrow was again used for at least two burials during the Iron Age, one of which is only of a part of a body.

### Conclusion

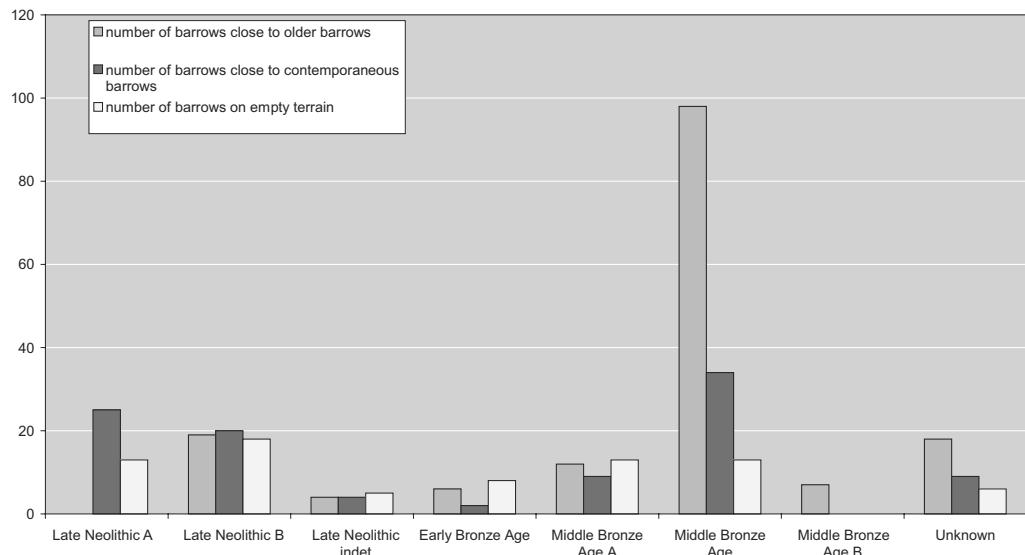
Summing up, if we want to find out if Middle Bronze Age barrows were situated near houses or vice versa, it is particularly apparent that there are not many sites that lend themselves to such investigations. This alone should make us cautious not to press the evidence too hard. In the few cases where it is possible to test the relation between barrows and houses in the same excavations, we found more arguments for the view that houses were situated near older barrows than for Roymans' and Fokkens' theory that barrows were built near existing houses. The site of De Bogen could be interpreted as the remarkable exception, where houses and burials are contemporary, and may both have formed the centre of a barrow.

### Are barrows contemporary to houses?

If we broaden our view, there are still both hundreds of known houses and barrows that have been excavated in such a limited way that nothing can be said on the actual relations between both, although it is clear that barrows and houses are often found in the same micro-region. Thus, there is still a possibility that many barrows were built near houses,

as the Roymans/Fokkens model predicts. Alternatively, there may have been a spatial distance between houses and barrows, but the latter may still have been used as burial sites by some individuals inhabiting the longhouses. Established views on the datings of both Middle Bronze Age longhouses and barrows clearly suggest that this was possible, as characteristic three-aisled longhouses and barrows existed at the same time (longhouses: 1800–900 BC: Fokkens 2005b, fig. 18.3; Middle Bronze Age barrows: 1800–1100 BC, with a peak in 1500–1100 BC: Drenth and Lohof 2005, note 3). However, recent research on the dating of both Middle Bronze Age longhouses and barrows radically alters this view.

Re-assessment of datings of all Middle Bronze Age houses found in the Netherlands makes clear that all <sup>14</sup>C-dated and dendrochronologically dated houses date from 3150 BP (c. 1400 cal. BC) and later (Arnoldussen and Fontijn 2006). All claims for houses that date between 1800–1500 cal. BC appear to be refutable. A re-assessment of all <sup>14</sup>C-datings for barrows, on the other hand, shows that most Middle Bronze Age barrows date from the period before 1400 cal. BC (Bourgeois and Arnoldussen 2006)! Contrasting the datings of Middle Bronze Age barrows and houses on the basis of radiocarbon datings (after a critical selection and re-assessment), most burial mounds clearly pre-date the longhouses (*ibid.*). Even after calibration this still holds true. Although some of the clusterings may represent a so-called 'old wood' effect, or might result from inconsistencies of the calibration curve, it is still conspicuous that 90 % of the dates for barrows fall before 3150 BP and 80 % of the dates for houses fall after this period. The calibrated datings are depicted in Fig. 3.4. This in itself makes it possible to challenge the theory that people who built the well-known Middle Bronze Age longhouses



*Fig. 3.5 Location of barrows in the landscape from the Late Neolithic to the last phase of the Middle Bronze Age. Shown are the numbers of barrows placed on a site with no traces from the same period (i.e. no late prehistoric traces observed underneath the barrow), those which are located close to barrows of the same period, and those which are located close to barrows of previous periods ('close to' as defined in text)*

that we know in such large numbers from the Low Countries buried their dead in the many barrows that were  $^{14}\text{C}$ -dated. It seems more likely that not many barrows were built after c. 1400 cal. BC. This is in marked contrast to the established theory that sees this period (1500–1100 BC) as precisely the one in which the largest number of barrows were built (Drenth and Lohof 2005, note 3). This increase in numbers of barrows, however, is mainly based on typochronological assumptions, in particular that barrows with peripheral post-circle structures date to 1500–1100 BC. A re-assessment by one of us of all  $^{14}\text{C}$ -dated barrows with post-circles shows that the evidence does not support this theory at all: most barrows with post-circles also date before 1400 BC. Twenty are  $^{14}\text{C}$ -dated before 1400 BC and only four after. These datings are *termini ad quem* rather than *post quem* (Bourgeois *in prep.*).

This dating evidence has important consequences for our discussion. The overall  $^{14}\text{C}$ -datings suggests that there were already quite extensive 'barrow landscapes' by the time that the first three-aisled longhouses we know of were built. Most barrows, then, may even have been built during the Middle Bronze Age-A (1800–1500 BC), a period which now appears to be a phase from which we have no evidence at all on houses or outbuildings. There are indications that this is because such houses lack the distinct regularity that characterizes the later three-aisled longhouses (Arnoldussen and Fontijn 2006). Middle Bronze Age-A houses may generally have gone unnoticed in many palimpsest 'posthole-swarm' sites that do have clear evidence for Middle Bronze Age-A activities like Geldermalsen-De Bogen (Arnoldussen *in prep.*). Middle Bronze Age-A barrows, then, may theoretically have been built near Middle

Bronze Age-A houses, but in the absence of houses that can be properly dated to the Middle Bronze Age-A there is no ground for investigating this further.

### What did determine the location of Middle Bronze Age barrows then?

We have now seen that Middle Bronze Age barrows cannot generally be understood as the burial grounds of a household in a straightforward sense. It was also argued that there is an acute lack of the sort of empirical data needed for investigating whether barrows were indeed preferably placed near houses. On top of that, the extant excavation evidence supports the view that houses were built close to ancestral barrows rather than vice versa. On a more general level, we saw that adequately dated barrows were constructed in a phase before the period when the characteristic longhouses are known. In all, this makes the theory that Middle Bronze Age barrows were preferably built in the vicinity of longhouse as a burial ground for the household an untenable one. But what determined the location of Middle Bronze Age barrows then? The fact that the environment of a barrow has rarely been excavated makes any statement on this topic problematic (cf. Van Beek 2001 for an early exploration of this topic in the northern Netherlands). There is, however, one pattern that does become visible in the available evidence: Middle Bronze Age barrows are repeatedly found in association with other barrows.<sup>1</sup> Fig. 3.5 depicts the associations between barrows through time. Even during the phase of the Late Neolithic Single Grave Culture, barrows are more often

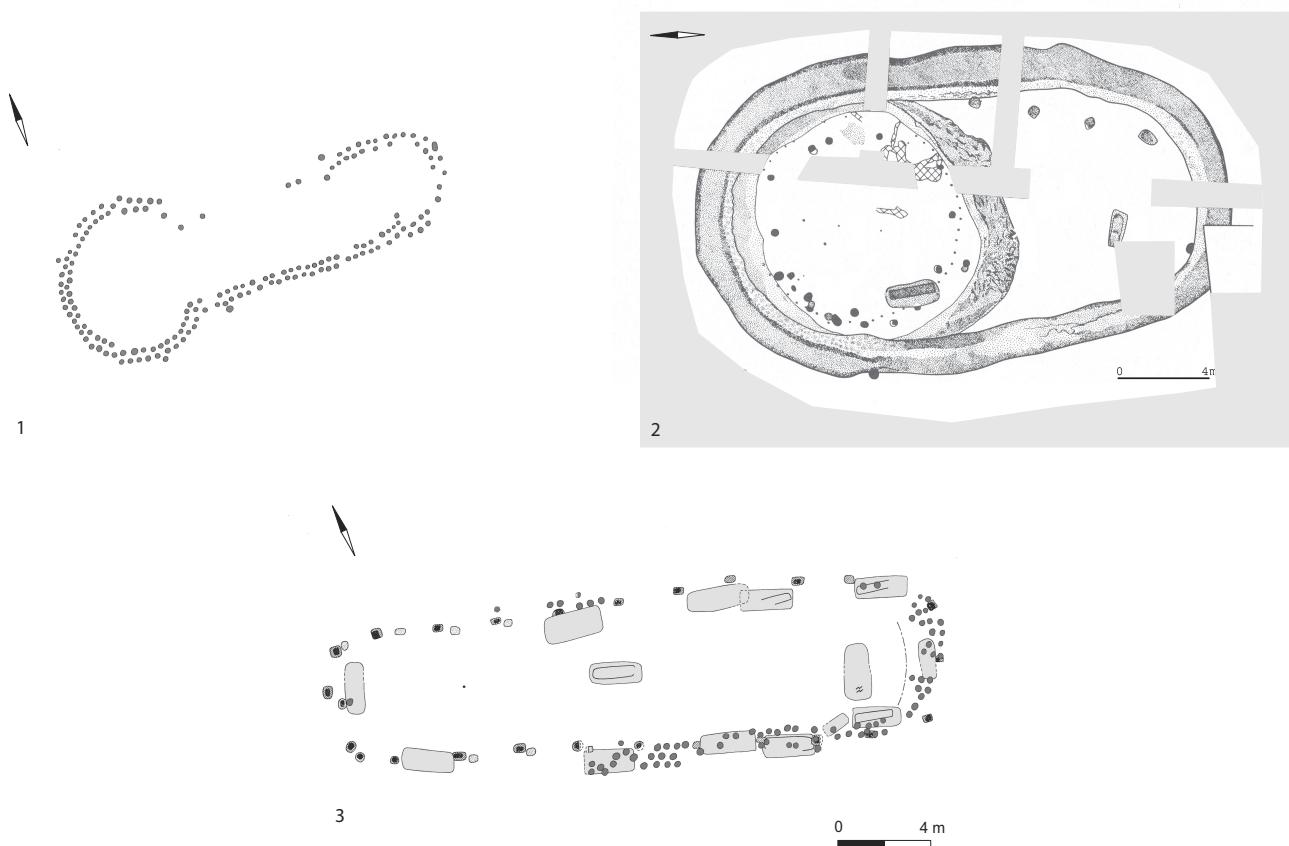


Fig. 3.6 Examples of rectangular barrows (all to same scale). 1. Haps Oval 3 (Verwers 1972); 2. Hijken Hooghalen tumulus 3 (Van der Veen & Lanting 1991); 3. Gammelke (Verlinde 1973)

found together (in small clusters) than known as individual mounds on 'pristine' terrain (i.e. no pre-barrow features on the surface covered by the mound). In the subsequent periods, the tendency to construct new mounds near existing ones only increases to reach a peak in the Middle Bronze Age. As can be seen in Fig. 3.5 the majority of known Middle Bronze Age barrows were built near (much) older barrows. Alternatively, Middle Bronze Age barrows are to be found near other Middle Bronze Age barrows. For only a small number of Middle Bronze Age mounds no spatial association with other mounds could be observed, but here we should keep in mind that the lack of excavations and systematic thorough surveys makes this absence of evidence no evidence of absence.

There is a clear preference for placing Middle Bronze Age mounds near existing burial mounds (apparently regardless of their age). In the same period, older mounds were also more often than before re-used as burial location (Drenth and Lohof 2005, 451), for instance by raising the existing barrow with a new platten layer (Dutch: 'heuvelperiode' or 'mound period'). It is not just that existing mounds 'attracted' the construction of new mounds in their vicinity; existing mounds themselves were also re-used and covered with new mounds. However, during the Middle Bronze Age 75 % of the additions made to existing

mounds were done on barrows dating to the Middle Bronze Age itself. This might imply that the time between phases of usage was modest, but we lack sufficient adequate datings for investigating this. Nevertheless, a significant part of mound erection took place over monuments that were already very old by the Middle Bronze Age (Neolithic mounds); here such a re-use can rarely have been steered by genealogical knowledge of its previous users.

Summing up, there seems to have been an outspoken tendency during the Middle Bronze Age to construct new barrows in the near vicinity of ancestral ones. These include mounds which were raised perhaps one or two generations earlier but also mounds which were already age-old.

#### **Reviewing the relationship between barrows and houses**

Our review of the evidence has so far done much to deconstruct the relation between houses and barrows as envisioned by Roymans and Fokkens in the 1990s, but it still leaves open the possibility that specific conceptual relations between houses and barrows mattered during the Middle Bronze Age. We already mentioned the cases where barrows and houses were clearly situated in each other's vicinity. Our reinterpretation of the barrow of De

Site	radiocarbon code	<sup>14</sup> C date	calibrated	period	type of association	interpretation
Haps O1	GrA-19117	3090±45	1460–1250	MBA-B	secondary interment underneath posthole	terminus ante quem
Haps O1	GrA-19116	3165±45	1530–1310	MBA-A – MBA-B	primary (?) interment	terminus ad quem
Haps O2	GrA-19564	2530±45	810–510	EIA	primary (?) interment	terminus ad quem
Haps O3	GrA-19121	3130±45	1500–1290	MBA-B	primary (?) interment	terminus ad quem
Borger Drouwenerstraat XI	GrA-17601	3065±40	1440–1210	MBA-B	secondary interment	terminus ante quem
Borger Drouwenerstraat XI	GrA-17602	3045±40	1420–1190	MBA-B	secondary interment	terminus ante quem

Table 3.2 <sup>14</sup>C-datings of elongated barrows; source Lanting & van der Plicht 2003

Bogen even suggests a situation where a house was the resting place of the dead and the site of a future burial complex/barrow. Then, there is in our view also another set of evidence to be taken into consideration: the rectangular barrows. The hundreds of Middle Bronze Age barrows mainly have a round or – less often- oval plan. There are also a small number of barrows that have a rectangular form, comparable in shape to the langbedden (long barrows) of the Late Bronze Age and Early Iron Age urnfields. Such rectangular barrows tend to have post-settings around the mound, just like many round barrows (Fig. 3.6). They contain primary and secondary graves just like their round counterparts. There has been debate about their dating (cf. the specimen from Haps: Lanting and Mook 1977, 104–5; Theunissen 1999, 67–69), but recently <sup>14</sup>C-datings suggest that rectangular post-aligned barrows did exist in the Middle Bronze Age (although some specimens are indeed clearly attributable to the Early Iron Age: Table 3.2). The motivation for the different shape of these barrows, which so clearly created a visual contrast with the many round barrows in their vicinity, is intriguing (as for example in Gammelke, Fig. 3.6: Verlinde 1973). It has been argued that the reason behind their deviant shape might have been the intention to give them some visual similarity to longhouses (Van Rossenberg 1999; see Roymans and Kortlang 1999 for a similar argument on Early Iron Age long barrows). It is hard to prove that some sort of metaphorical relation between long barrows and houses steered their specific shape. It is clear, however, that these long barrows were decisively different in shape than the numerous round ones next to which they are often situated. On top of that, the <sup>14</sup>C-datings show that these barrows now appear to be among the few barrows that date from the Middle Bronze Age-B, that is, in our review of the evidence, the only period for which we know for sure that longhouses existed! The formality and strict regularity with which the Middle Bronze Age-B houses were built has been interpreted as an expression of the significance of the house and the household (Arnoldussen and Fontijn 2006). Is the building of ‘house-like barrows’ another expression thereof? On

the other hand, the strict regularity in space between the trusses of longhouses (*ibid.*) finds no parallel in the posts in and around long barrows, playing down the supposed formal similarity between houses and barrows. At this stage, there is no way to further investigate this and our discussion must remain inconclusive.

## Conclusion

Our review of the evidence shows that existing theories on the relation between barrows and houses during the Middle Bronze Age should be nuanced.

First, we argued that most burial mounds couldn’t have been the true burial site of a household or family; at best, they might have been a symbolical expression thereof. But even then, the relatively low number of burials with known age and sex simply prevents us from making any further generalizing statements on this matter and requires further investigation.

Second, the well-known theory that barrows were preferably located close to houses (and new mounds placed near new house sites) appears hard to test, but we found several indications that the relation between houses and barrows was different than that argued by Roymans and Fokkens. A new study of <sup>14</sup>C-datings of both houses and barrows by one of us suggests that most barrows date back to a period (Middle Bronze Age-A, 18th–16th century cal. BC) before the time in which most known houses were built (Middle Bronze Age-B 15th cal. BC and later). This means that we simply lack reliable evidence of houses from the period when most barrows were built, preventing any substantial testing of Roymans’ and Fokkens’ theory. Also, there appears to be only a limited number of sites where houses and barrows were found within one and the same excavation. Among this small number of sites, there are several where it is clear that houses were built close to existing, older barrows, suggesting a reversal of Roymans’ and Fokkens’ original theory. Relations between houses and barrows did matter, however. An unexpected example

thereof is offered by our reinterpretation of the recently excavated barrow of Geldermalsen-De Bogen. Here, there is evidence that the dead were buried in a house that was covered by a barrow. A further hint that relations between houses and barrows were significant might be found in a small group of rectangular barrows that have some formal similarity to houses in form and placing of posts.

Third, we concluded that there seems to have been at least one other factor which influenced Bronze Age people in their selection of a place for the construction of a barrow: the presence of other burial mounds. In the Middle Bronze Age, the majority of barrows appear to be located in the near vicinity of other ones. It seems as if 'mounds attract mounds'. There is a conspicuous lack of large-scale investigation of the surrounding environment of these 'mound clusters' and new excavations of such terrains are badly needed.

Now that barrows are only sporadically excavated in the Netherlands and major syntheses have been published, we hope to have shown that barrow archaeology is still anything but finished. In our view, barrows are not the straightforward Bronze Age household cemeteries that they are often taken to be. They are not the unproblematic companions of houses and it is unlikely that they represent the burial grounds of an entire household. They should rather be seen and investigated as special monuments in their own right, having their own place and history in the Bronze Age landscape. What this entails is far from clear at this moment, but in our view our present investigation alone calls for a fresh re-assessment of the existing data on barrows, as well as for a revival of fieldwork.

## Appendix: A revision of the chronology of the De Bogen barrow

The 'De Bogen' barrow has been subject of an ongoing discussion since its excavation in 1999. Since its publication the interpretation and the dating has provoked considerable debate (Meijlink 2001; Meijlink and Kranendonk 2002; Lanting and Van der Plicht 2003, 198–201; Lohof 2003). Our reassessment includes several of the new interpretations made by the authors, but takes a different stance on other points. Here we will attempt to construct a revised interpretation that came about through a critical review of all the available information and intensive discussion with the excavator and author of the site report of this barrow, Bernhard Meijlink.

One of the interesting things about this barrow is the high number of radiocarbon dates available. Several of the authors who have published on this barrow, however, use the radiocarbon dates in significantly different ways. Some accept only dates on charcoal and refuse to accept any date on bone, while others only accept some of the dates on bone. In this overview, the radiocarbon dates have been critically reviewed and only samples with a good association have been accepted. Also, as Lanting and Van der Plicht suggest, the option of charcoal being preserved on the surface and becoming incorporated into younger features, has been taken into serious account. We have also chosen to accept

the radiocarbon dates on bone apatite and tooth enamel, but to be critical with dates on bone collagen, following Lanting and Van der Plicht (2003, 199–200).

The first trace of a grave ritual at this location is a pit with Bell Beaker sherds and the remnants of a human foot. Some charcoal in this pit was dated and gave a BP date of  $3665 \pm 60$  (calibrated 2200–1890 BC). It is not known if a barrow was already present at that time yet the nature of the "grave" suggests that it was not. Fragments of bodies occur frequently on settlement terrains in the Late Neolithic. A nice parallel for the case of De Bogen is the Late Neolithic site of Aartswoud, where the remains of a human foot were found during the excavation (Van Heeringen and Theunissen 2001, 111).

The so-called eccentric ditch forms the second phase of a possible grave ritual (Fig. 3.3). The exact date of this ditch is unknown but a Hilversum type sherd found in its fill gives a terminus post quem for this ditch. The stratigraphical positioning of this ditch is also difficult to determine and it is unknown whether a barrow was present or not. The evidence available does not allow us to state whether or not we are dealing with a barrow. No grave was found that could be associated with this ditch.

The first 'straightforward' burial to occur is grave 1, a skeleton in crouched position. For this grave three radiocarbon dates are available; one on tooth enamel, one on bone apatite and one on bone collagen. Of these three dates, Lanting and Van der Plicht (2003) suggest that the bone collagen radiocarbon date is too young. A combination of the other two radiocarbon dates places the grave roughly between 1600 and 1400 cal. BC. Following Lanting and Van der Plicht, we also use the latter two radiocarbon dates. Lohof chose to ignore these radiocarbon dates and places the grave in the Late Neolithic (or even more preferably the Early Bronze Age; Lohof 2003, 114), suggesting that the grave might date to the 17th century BC. This early date is hard to reconcile with the calibration of the radiocarbon date (Fig. 3.7). His argument is based on the assumption that the position of the body would be in line with the positioning of graves in the Late Neolithic and the Early Bronze Age. However, an analysis of all known Late Neolithic graves with discolorations left behind by the corpses ('lijksilhouetten' in Dutch) and with skeletal remains shows that the position of the body of De Bogen is very different. The knees of the deceased in grave 1 are completely drawn up to the chin, while in Late Neolithic graves, the legs are positioned at a right angle to the body, as can clearly be seen in the graves of Molenaarsgraaf (grave 1, 2 and 3: Louwe Kooijmans 1974, 243–263).<sup>2</sup> The burial at De Bogen is in an extreme crouched position, which has no Late Neolithic parallels, but does have an interesting parallel in the Middle Bronze Age! At Zwaagdijk a small group of graves was uncovered of which one had an infant in an extreme crouched position similar to the one at De Bogen (Modderman 1964, 30). Another grave belonging to the same group was radiocarbon dated to the Middle Bronze Age and was associated with a bronze sword, also attributable to the Middle Bronze Age. The grave of Zwaagdijk would be the only known grave in an extreme crouched position known to us.

Returning to De Bogen, we do not follow Lanting's proposition that the sword found at the excavation is associated with grave 1, since Lohof (2003, 114) and Meijlink both confirm the original

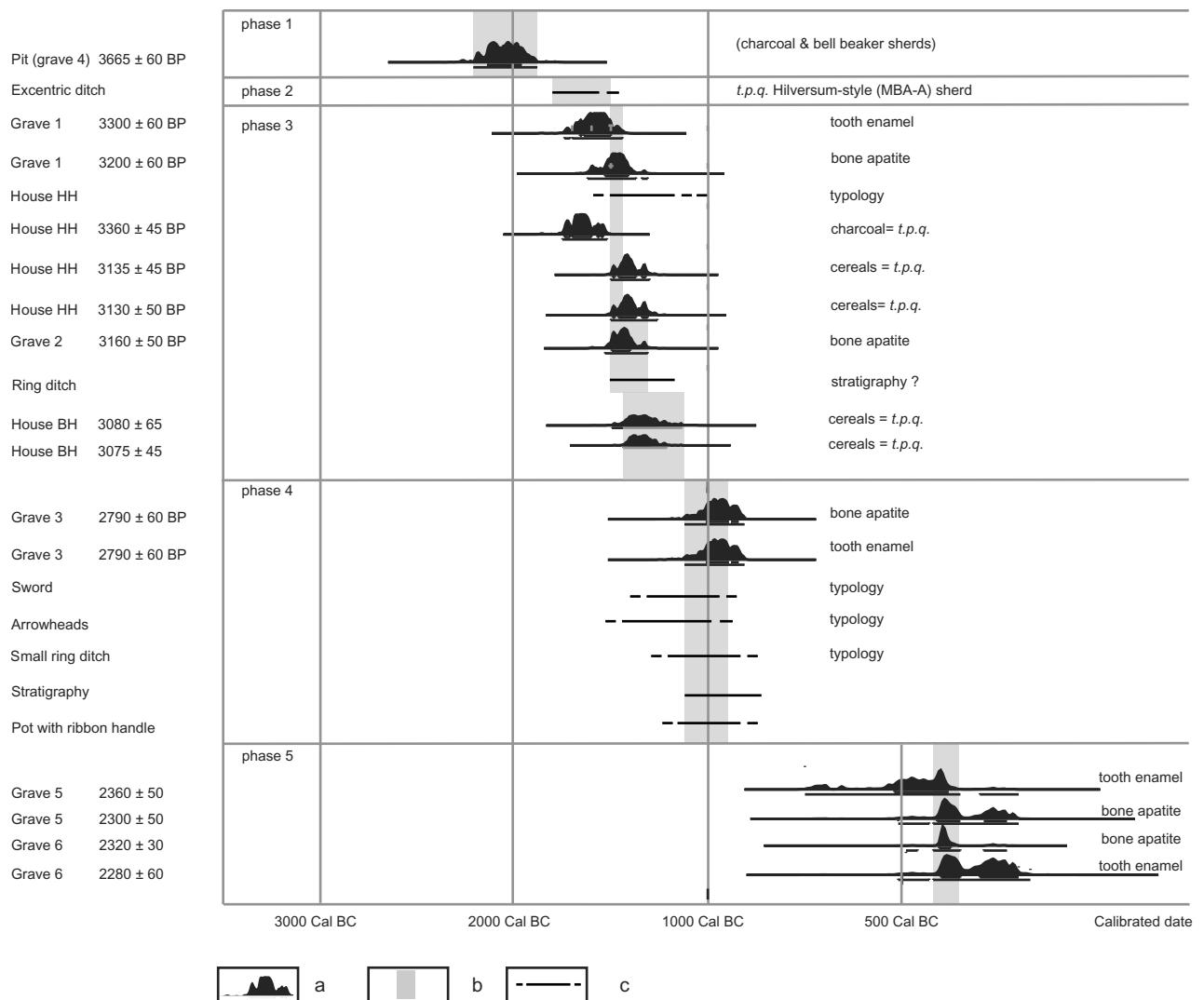


Fig. 3.7 *Dating evidence of Geldermalsen-De Bogen; C14-dates from Meijlink 2001.*  
 a. radiocarbon date (calibrated with Oxcal 3.10); b. probable duration of phase; c. typochronological age range

publication, in that the sword was found close to grave 3, 10 cm on top of grave 1. Lanting's analysis is based on a personal communication by the original author of the barrow (Meijlink pers. comm. In Lanting and Van der Plicht 2003, 200), but Meijlink insists that this is erroneous and that there is no doubt that the sword clearly came from grave 3 (Meijlink pers. comm. 2006). Grave 1 was not disturbed as Lanting and Van der Plicht claimed, since their interpretation was based on an incorrect drawing (pointed out by Lohof 2003, 114). Grave 1 would thus be a Middle Bronze Age burial, dated between 1600 and 1400 cal. BC, in an extreme crouched position. The radiocarbon dates are in concordance with the archaeological contextual evidence.<sup>3</sup>

Surrounding the grave was a ring ditch with a diameter of 16 m and within the area encircled by the ring ditch were hundreds of postholes traces visible. Meijlink reconstructs several Late Neolithic and Bronze Age houses along with four post circles from this palimpsest. In our view, Lohof correctly criticizes

most of these post circles although he tends to accept one (Lohof 2003, 112). We would like to argue that not a single one of these post circles is acceptable, following the same argumentation as Lohof did.

Meijlink reconstructs several houses all located at the place of the presumed barrow or in some way associated with the presumed barrow. After a critical review by Arnoldussen (in prep.) only two house reconstructions still stand up to scrutiny, house HH and house BH. Of these two, house HH lies exactly within the barrow. It is remarkable that the single acceptable house in the location of the barrow, is the house in which grave 1 is located.

It is likely that grave 1 and house HH are directly associated, since the grave is positioned exactly in the centre of this house (for parallels see the main text). The multiple radiocarbon dates available for the grave and the house do not contradict this association (Fig. 3.7). The <sup>14</sup>C-dates from the skeleton itself deliver a radiocarbon date that is a direct dating of the moment

of death and delivers a *terminus ad quem*. The house too has been well dated and no less than three radiocarbon dates are associated with the posts of the house (two on grains and one on charcoal, all found in the fill of the posts: Meijlink and Kranendonk 2002, 47). Although Lanting and Van der Plicht are highly critical about these dates, because they come from small samples of charcoal, they still can be used as *terminus post quem* indicators. Charcoal and burnt grains can linger on a site for a long period of time, but at the very moment they get incorporated into the postholes, they are locked in the archaeological feature and they thus deliver a *terminus post quem*. It is suggested that a combination of all these radiocarbon dates would place the barrow in the first half of the 15th century BC, although a certain margin of error should certainly be respected.

No traces of a mound could be distinguished in the sections. This has led Lanting and Van der Plicht to argue that no, or only a very low, barrow was present (2003, 201). Analysis of some soil samples, however, does suggest that a barrow was present (Van Zijverden 2002, 84). The large ring ditch might be linked with this barrow, although this could not be proven stratigraphically. It would be highly unlikely that with several graves in the same position and a ring ditch surrounding the oldest graves, that no barrow was present. In addition to this, the barrow was reused after a considerable time for new burials, grave 3 in the Late Bronze Age and grave 5 and 6 in the Iron Age. It would be remarkable that this area was selected if no barrow had been present. It is more likely that the traces of a barrow could not be detected in the sections, since at least part of the barrow had been leveled by subsequent agricultural activities. In our opinion a visible raised mound must have been present at the site.

The exact positioning of grave 2, a baby of 0–9 months old, is uncertain and it cannot be said whether this grave was a primary or secondary interment. A radiocarbon date on bone apatite of the skeleton would suggest it is contemporary with grave 1. Whether we are dealing here with a secondary interment or a double burial of an adult (grave 1) and a child (grave 2), is not known.

Some time after the primary interment a third grave was dug in the center of the barrow. Radiocarbon dates on bone apatite and tooth enamel, would place this grave in the Late Bronze Age or Early Iron Age (1120–810 cal. BC).<sup>4</sup> Both Meijlink and Lanting and Van der Plicht have argued that this <sup>14</sup>C-dating would not be compatible with the typochronological dating of the sword that was found associated with this inhumation. Butler and Hielkema (2002, 539–540) date this sword on the basis of typochronology to the 14th–13th century BC. This dating, however, seems to be based on the typochronology of associated palstaves rather than of the sword type itself. In our view, such swords have a longer and somewhat different dating range. The sword of De Bogen is a simple version of a long ‘Griffplattenschwert’, comparable to those of type ‘Rixheim’ and ‘Rosnoën’ swords. It finds a neat parallel in ‘Griffplattenschwerter’ of type ‘Meienried, Variante Vernaison’ (cf. Schauer 1971, 75–76; see especially no. 241 from Gerolfingen: Schauer 1971, 75, Tafel 34). Schauer dates such swords to the ‘Frühphase der Urnenfelderkultur’, which comes down to Bz D, Ha A1 and Ha A2 (1971, 76: Abb. 2, Tafel 154). This is in line with the more general dating of such long rapiers (related types like ‘Rosnoën’ and ‘Rixheim’, Ha A1/ Bronze final

I/ Iia: Briard 1965; Butler 1987; Fontijn 2002, 132–133 and fig. 7.2). Our view on the typochronology of the sword fits in with the dating range of the bronze arrowheads (see below) and with the <sup>14</sup>C-dating of skeleton 3. We feel that there is no ground for Lanting and Van der Plicht’s (2003, 200) assertion that the typochronological dating of the sword would fit the (older) <sup>14</sup>C-dating of skeleton 1. The arrowheads found in the section could belong to this grave as they form part of a package of grave goods commonly found in Middle Bronze Age warrior graves. Lanting cites some parallels for the arrowheads that can be dated around 1500 BC, but to this should be added that there are also some later parallels for such arrowheads that can be dated to at least the early 11th century BC. One such parallel for the arrowheads can be found in the grave of Hennef-Geistingen in the Rhineland that dates to the Hallstatt A1 period (or roughly in the 11th century BC (Desittere 1968, 43, fig. 27). So both the sword and the arrowheads have parallels that can be dated to at least the Hallstatt A1 period or the 11th century BC. The radiocarbon dates for grave 3 would thus be in line with the typochronological dating of the sword as well as the arrowheads.<sup>5</sup>

Another significant dating element that might be added to this discussion is the small concentric ditch dug into the top of the mound. The stratigraphical positioning of the small ditch would place it late in the sequence and some parallels from an Urnfield context would not exclude a Late Bronze Age/Early Iron Age date. The practice of digging a small ditch on top of an older barrow is a practice often seen in the Late Bronze Age and Early Iron Age.<sup>6</sup>

The small pot found in the barrow could not be associated with any of the graves. It was found close to grave 2 and 1, but the pot was found in solid ground and was not associated with any recognized soil trace. The association of the pot with any of the graves is thus impossible to reconstruct. We disagree with the typological dating of this pot in the Early Bronze Age by Lohof (2003, 115). Lohof cites Louwe Kooijmans in stating that handles on pots are not rare in the Early Bronze Age, but in this article Louwe Kooijmans (1974, 296) states that are handled beakers are extremely rare in the Netherlands, and if we have one, it dates to the Early Bronze Age. On top of that, the handle types used in an Early Bronze Age to Barbed Wire pottery tradition are all handles with a round section. The handle on the pot of De Bogen is a handle type that is more common in the Late Bronze Age, the ribbon handles (Verlinde 1985, 352). Another element that would also be compatible with a Late Bronze Age date, is the form of the pot. The low belly of the pot is rather atypical for the Early Bronze Age, but would fit more comfortably in the Late Bronze Age (for a good parallel see Desittere 1968, Figure 60, nr. 5, although we entirely agree with Lohof (2003, 115) on the parallel of Vasse which is a Barbed Wire Beaker). The undecorated pot can thus not exclusively be placed in the Early Bronze Age as Lohof would like to have it, and an option of the Late Bronze Age should be taken into serious consideration. The exclusive use of chamotte as tempering material does in any case not argue against a Late Bronze Age date for this vessel.

Twice after this, the barrow was used for inhumation burial in the Middle and Late Iron Age, graves 5 and 6 (respectively dated 750–200 BC and 510–170 BC). No chronological problems are

associated with the interpretation of this phase and all authors agree. It is however interesting to note that the barrow has been reused in the Middle or Late Iron Age, which is something quite rare in the Netherlands (Van den Broeke and Hessing 2005, 655–658)! These two graves also indicate that there was probably a barrow present, since they have selected this part of the site to be buried and not another one.

The barrow in itself is very complex and not all elements could be linked to one another. But a critical analysis of the typological arguments and radiocarbon dates allows us to construct a logical phasing. No evidence had to be left out or had to be ignored. To sum up, the barrow has four phases:

- 1 A pit with remains of a human foot in it, dated to the Bell Beaker phase (radiocarbon and potsherds).
- 2 The eccentric ditch, difficult to position, but with a terminus post quem of a Hilversum sherd.
- 3 Grave 1, house HH, grave 2 and possibly the large ring ditch can all be placed around 1600 to 1400 cal. BC. The chronological interrelatedness of these four events is impossible to define. It is likely that at this point in time a barrow was erected.
- 4 Grave 3 is a secondary interment in a barrow. Associated with this grave are the sword and the arrowheads. Radiocarbon dates and a critical assessment of the typochronological dating of the bronzes allow us to place this grave in the 12th or 11th century BC. The small ditch can possibly be linked with this grave.
- 5 Both grave 5 and grave 6 can be attributed to an Iron Age reuse of the barrow. No additional features are associated with this phase.

## Notes

- 1 The association is based on a definition of barrow groups used in the compiling of the database. A group of barrows are, by rule of thumb, several barrows found within 400 meters of each other. When a natural boundary occurs within 400m, such as a river, this is used as a boundary between groups.
- 2 Some well documented body discolorations ('lijksilhouetten') also show that the legs are positioned at a right angle to the body and that they are never drawn up to the chin as is the case at De Bogen. See for example Uddelermeer Barrow E (Holwerda 1911), Hanendorp (Holwerda and Evelein 1911), Bennekom Oostereng barrow 12 (Bursch 1933), Elspeterheide barrow 5 (Modderman 1954), Ermelose heide barrow II (Modderman 1954), Maarsbergen (Lanting and Van der Waals 1971), Lunteren de Vlooienpol (Unpublished, but see Bloemers *et al.* 1981, 49), Schaijk (Van Giffen 1949), Nijmegen Hunerberg barrow V (Louwe Kooijmans 1973).
- 3 The small oval ditch that would surround the grave is a feature that is difficult to place. It was mentioned in the field that some planks were placed on the side of the ditch, yet no drawings or photographs could be found of this feature. Meijlink himself said that the nature of the small ditch was not very clear (pers. comm. 2006). Therefore we have left it out of our reconstruction.

- 4 Lohof suggests that there is a possibility that a bone not belonging to the skeleton would have been dated, but according to Meijlink this is absolutely not the case and he is adamant that the samples sent in for dating do belong to grave 3 (pers. comm. 2006).
- 5 Lohof argues that the radiocarbon date might have come from a bone in disturbed context. Meijlink clearly states that this is not the case (pers. comm. 2006).
- 6 For instance in Drenthe at Wapse, several ditches were dug into the top of the barrows (Van Giffen 1936). At Riethoven Boschhoven a similar ditch as to the one at De Bogen was found, yet the drawings were never published. The barrow of Meerlo also shows a secondary urnfield ditch dug into the top of the mound (Verwers 1964). The barrows at Leusden den Treck both show a secondary ditch dug into the top of the mound, clearly visible in the profiles (Modderman 1955). Wijk bij Duurstede has a Bronze Age barrow at the center of an urnfield. Several ditches and graves are dug into the top of the barrow (Hessing 1989). At Knegsel huismeer two barrows show secondary ditches dug into the top of the mound (Beex 1952). Also at Ermelo in the profiles of one barrow the traces of a ditch dug in from the top of the mound (tumulus III) could be identified (Modderman 1954, 25).

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## 4 Bronze Age settlements in Drenthe

*Piet Kooi*

### Introduction

In the past fifty years, excavations on the Drenthe Plateau have revealed a considerable number of settlement traces of the Bronze Age. The first settlement site uncovered at Elp (1959–1962) was followed by excavation campaigns in new housing developments at Angelslo and Emmerhout near Emmen (1960–1968). Then came the excavations prompted by a reallocation scheme at Hijken (1969–1973). In the wake of the symposium in 1991 at Leiden about Bronze- and Iron-Age settlement research (Fokkens and Roymans 1991), three more Bronze Age settlement sites were uncovered: at Dalen in southeastern Drenthe (Kooi 1991), in a residential area at Roden (Harsema 1993) and on the Hondsrug ice-pushed ridge to the west of Borger, where new roads, parking areas and housing were to be constructed (Kooi and De Wit 2003; 2005).

All in all, a large number of house plans of the Middle and Late Bronze Age have become available. This has offered new insights into the farming economy of those periods and changes in the husbandry regime. Also, differences could be observed in the size of settlements, which ranged from large, comprising several clusters as at Angelslo-Emmerhout, to medium-sized as at Hijken and quite small settlements like those at Elp and Dalen.

### The evolution of the farmhouse

The results of the various investigations have in part been published, scattered over various familiar and lesser-known periodicals and survey articles. This contribution aims to present a general overview of Bronze Age settlement structures in Drenthe, giving special attention to certain

features. In the first place, these are the plans of the farmhouses, the main buildings in a settlement, offering shelter to both man and beast. Among the house plans the Emmerhout type (1400–850 BC) and the Elp type (1200–800 BC) can be distinguished, which according to current radiocarbon dates were in use largely simultaneously (Huijts 1992).

Some plans of the Emmerhout type have given rise to debate (Harsema 2001, 62–63; Fokkens 2003). The argument centered on certain small plans with a length of up to 17 m, in which no stall partitions were identified. Harsema proposed to distinguish these from the Emmerhout type, which does have distinct cattle stalls, as the separate, byreless, ‘Angelslo’ type. The debate may be settled by close examination of three examples from Angelslo and Emmerhout (Fig. 4.1). All three have an entrance in a short side. In the first example (no. 68), it may be noted that one half is marked by a more massive wall construction. During excavation of the two other plans, soil stains were observed in one part of the house and occasionally a little outside the wall. An obvious explanation would be that in all three cases part of the house had been used as a byre. In the first example, the byre section was provided with a more robust wall, and in the two other cases infiltration into the soil of phosphates from manure and slurry produced by stalled livestock caused a discolouration. The question remains whether there actually were no partitions, or whether these failed to be spotted in the excavation because of their shallow foundation depth. The extent of the stained soil suggests a byre without partitions.

In farmhouse construction, there evidently is a development in the byre section that can be clearly seen in farmhouse plans at Hijken and Dalen (Fig. 4.2). There, stall partitions may be seen in the middle part of the structures,

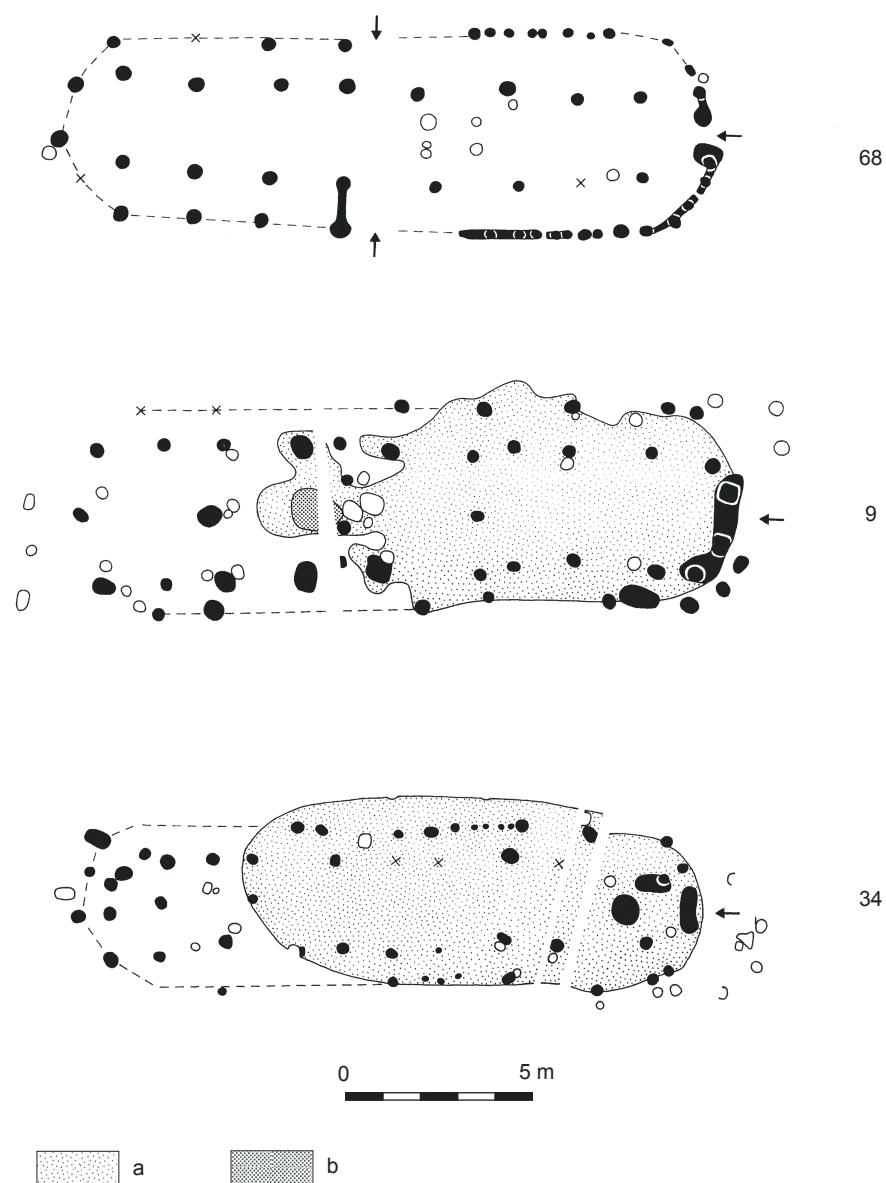


Fig. 4.1 Angelslo and Emmerhout. Plans of farmhouses 68, 9 and 34; all of the Emmerhout type (drawing by G. Delger, G.I.A.).  
Legend: a: Stained soil / infiltration; b: Hearth

and the farmhouses are somewhat longer. This resulted from an enlargement of the byre section that suggests a development through time (Fig. 4.3). The new layout implies a division among the livestock with the possibility of giving more attention and care to part of the herd, which to this end was stalled closer to the living quarters. We could think of cows in calf, while the young stock were housed in a less confined way in the rest of the byre.

There is no essential difference in the shape and overall construction of the farmhouses with and without a byre section. Moreover, it is not certain that the quality of the soil features will always allow an unambiguous distinction between the two. If there indeed was a type without stalls, we cannot suggest another or more precise dating, than that suggested for the traditional Emmerhout type.

An interesting aspect of farmhouse construction in the Bronze Age is the manner of alteration and renovation, which was first observed at Dalen for the Emmerhout type (Fig. 4.4; Kooi 1991). The manner and sequence in which these alterations took place can be reconstructed as follows. The byre section, affected by manure and urine, would be the first to become dilapidated and to be pulled down. Then, at the other end of the house new living quarters would be built onto the old, with extra ridge supports ensuring a good and solid join between old and new roof sections. The old living quarters would be closed up and rearranged as a byre. This procedure might be repeated several times and at Angelslo and Emmerhout produced composite house plans of up to 70 meters in length (Fig. 4.5).

An alternative method of alteration was to pull down

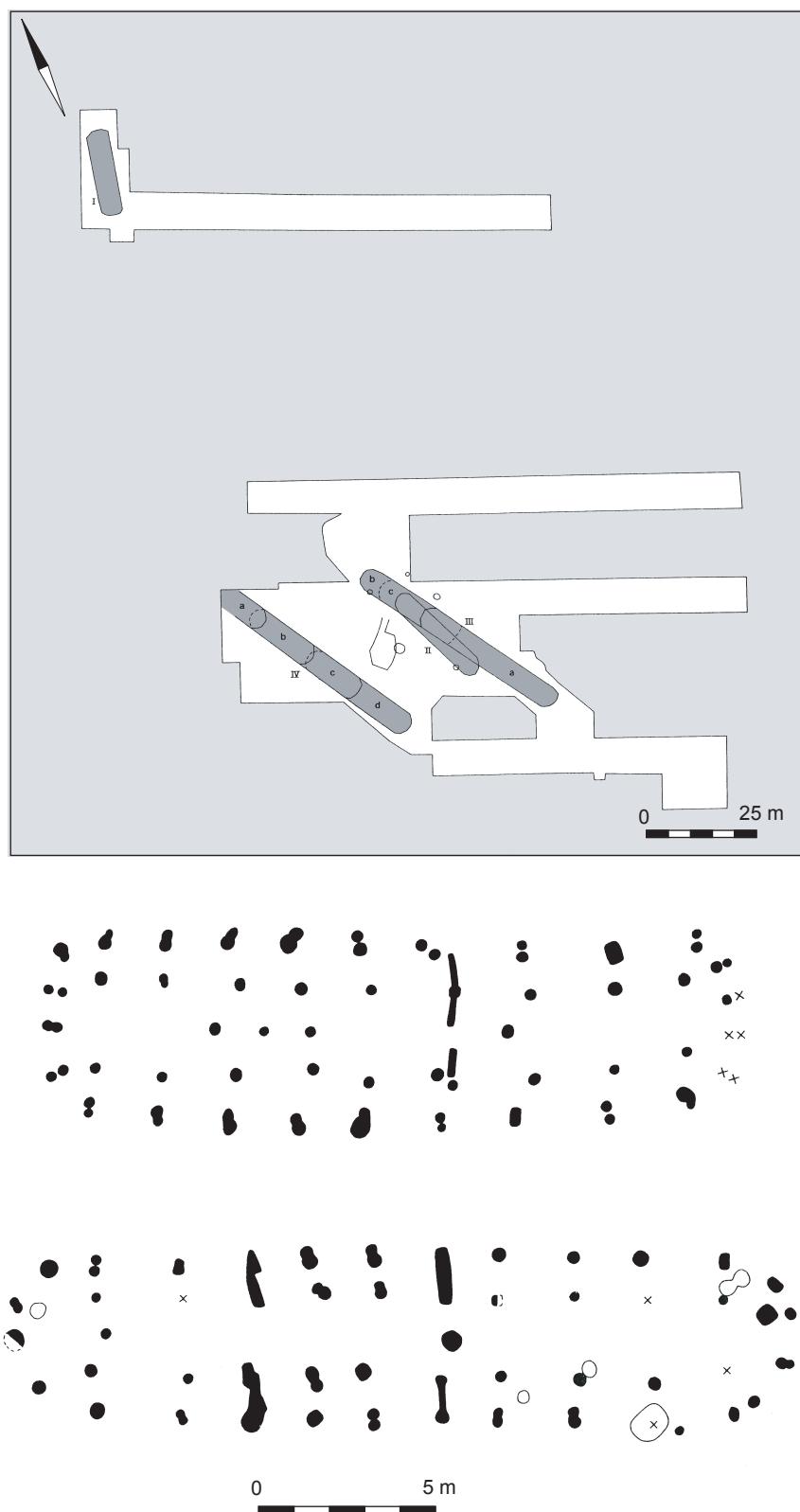


Fig. 4.2 Dalen. Schematic overview of part of the settlement and the plans of farmhouses I and II of the Emmerhout type (drawing by G. Delger, G.I.A.)

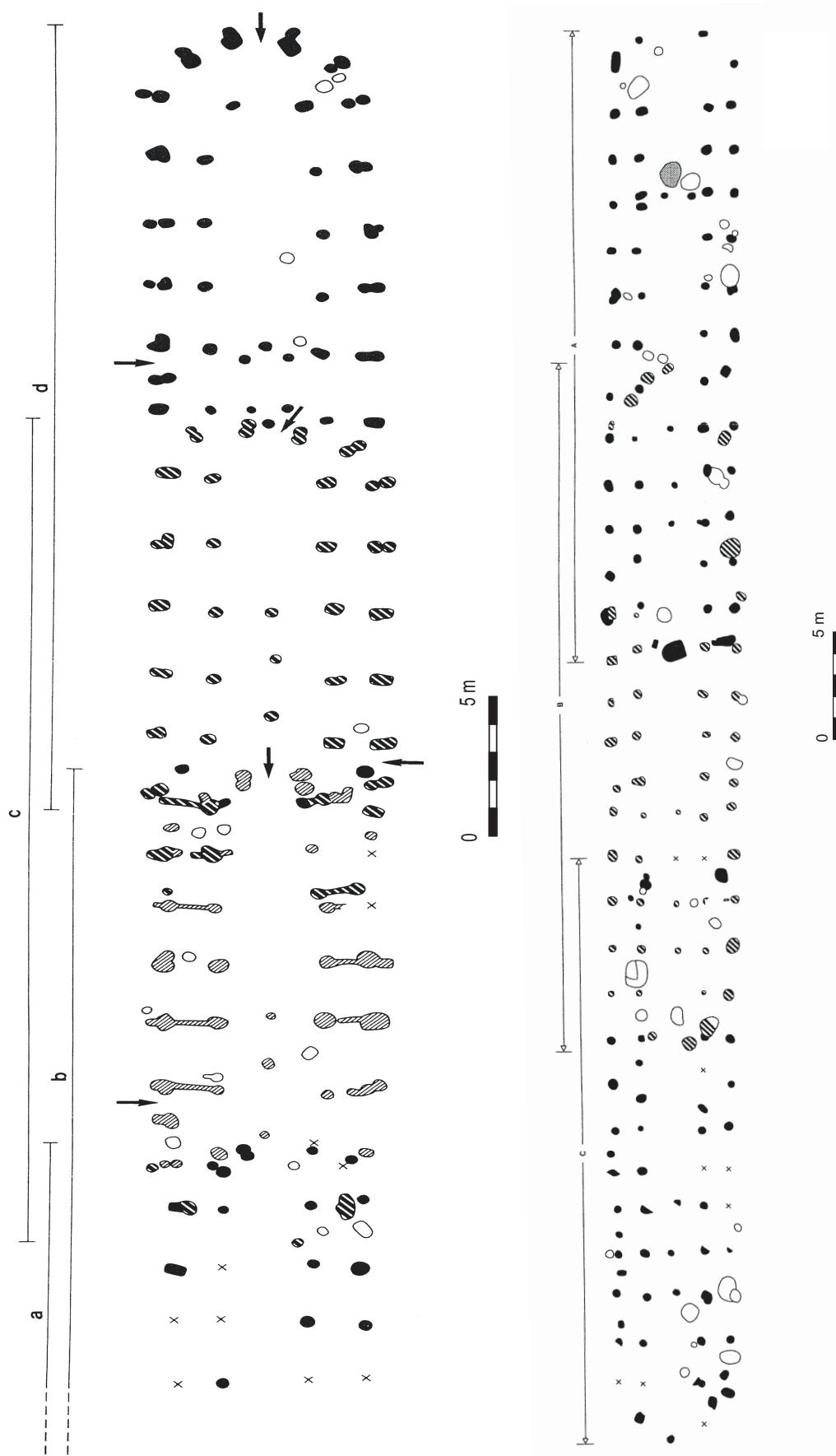


Fig. 4.3 (left) Dalen. House plan IV of the Emmerhout type with alterations in three phases (drawing by G. Delger, G.I.A.)

Fig. 4.4 (right) Angelslo and Emmerhout. House plan 36 of the Emmerhout type with alterations in three phases (drawing by G. Delger, G.I.A.)

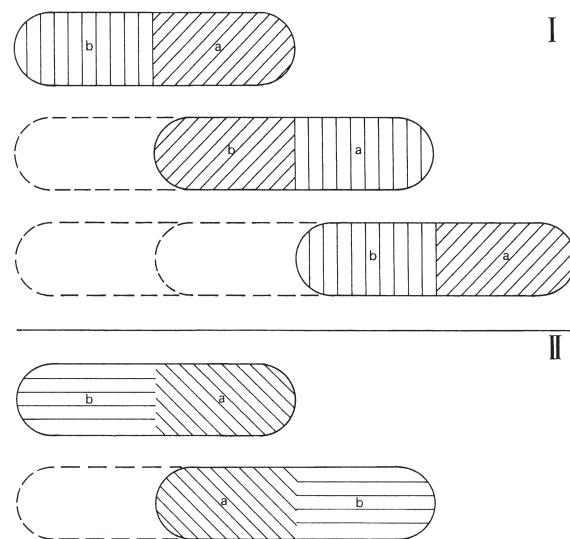


Fig. 4.5 Diagram illustrating two strategies for alterations and renovations to farmhouses of the Emmerhout and Elp types.

Legend: a: Living quarters; b: Byre section

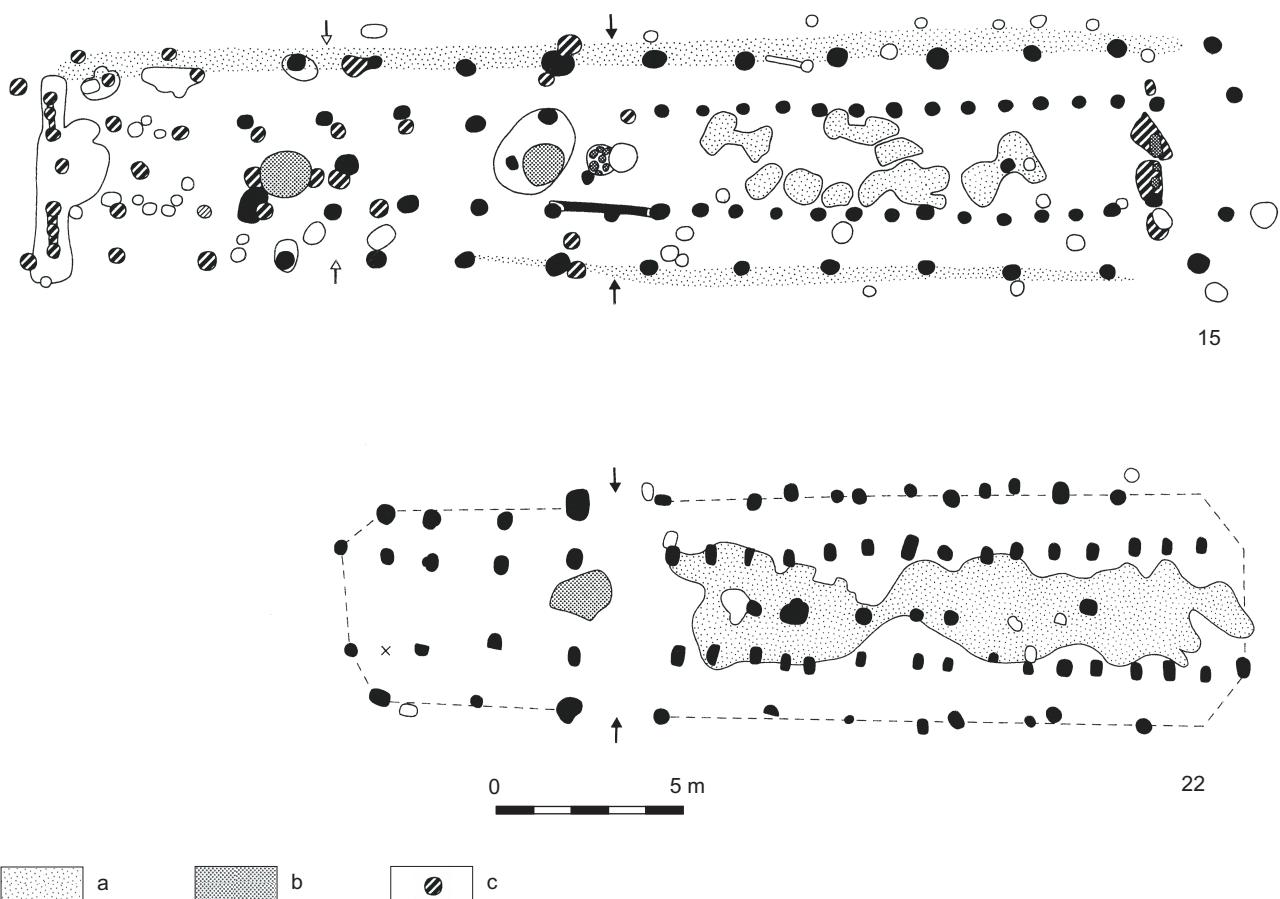


Fig. 4.6 Angelslo and Emmerhout. Farmhouses 15 and 22 of the Elp type. No. 15 saw its living quarters extended and a new hearth installed in the extension. The nave of the byre section in both cases shows infiltration stains (drawing by G. Delger, G.I.A.).

Legend: a: Stained soil/infiltration; b: Hearth; c: Repairs and extension



Fig. 4.7 Overview of the excavated areas (in black) in the housing developments Angelslo and Emmerhout, showing the locations of areas A, B and C, which appear in detail in figure 8 (drawing by G. Delger, G.I.A.)

the old byre section and then to rebuild it onto the opposite end of the living quarters. This will have been done just once. And finally a combination of the two approaches is possible, beginning with the former and ending with the latter (Fig. 4.6).

In the Elp type, the byre is easy to recognize and fully partitioned by means of extra posts. The walls of the short ends are less curved than in the Emmerhout type. The Elp type seems to be a logical sequel in the evolution of the farmhouse, as in this type the byre is fully partitioned into stalls by means of extra posts. This represents a fundamental difference from the byre in the Emmerhout type.

In various publications, the Elp type has been illustrated by house plan no. 15 from Angelslo-Emmerhout (Fig. 4.7). Closer analysis has shown that this plan too is the composite result of an alteration. The original farmhouse was extended on the residential end with new living quarters including a

new hearth, and the short side was given a square ending, which is a detail unusual in houses of this type. The byre was shortened and also given a square end. Another notable feature is the stained soil in the nave of the byre section, which suggests that the animals were stabled with their heads to the walls. The possibilities for alteration are the same as for the Emmerhout type and examples of this have been found at Angelslo, Emmerhout and Borger.

### The farmstead

Unfortunately no farmyard enclosure has been demonstrated with any degree of certainty, as boundary features are lacking. It is possible that farmsteads were enclosed by nothing more than shrubs and trees: initially farmsteads will have been sited in individual woodland clearings. In a

few cases, a rough assessment can be made of a farmstead's layout.

The excavation at Roden produced not only a farmhouse but also an extra byre and a granary (Harsema 1993). Such a freestanding cowshed with stalls was also found at Angelslo-Emmerhout (Fig. 4.8: C, 37). Elp has an enclosed paddock for livestock adjoining the byre door as well as a barn and granaries.

Between two farmhouses in the Huidbergsveld at Dalen, lies a small 'pen', as is the case at Angelslo-Emmerhout (Fig. 4.8: C). The settlement at Hijken has a large livestock enclosure, which apparently was in common use by a number of adjacent farms (Harsema 1991).

Evidently there were various different facilities for stabling and enclosing livestock. A freestanding cowshed may point to a growing herd, but may also mean that a particular part of the herd was kept separate. A large enclosure like the one at Hijken suggests that there was a need to keep the stock pounded at night whereas in the daytime it was communally herded in the surroundings of the settlement. If the cattle were kept at the farm, a paddock like that at Elp would be useful, but of course it could also serve to pound them.

The frequent and continuous alterations of existing farmhouses indicate a degree of continuity in the occupation of a farmstead. This is in contrast to the settlement patterns observed at the transition from the Late Bronze Age to the Iron Age, which is marked by short farmhouses that are rarely altered and quite soon replaced by new construction at a different location. A different type of farming economy may explain the difference. In the Middle Bronze Age the emphasis was increasingly on livestock farming and there are farms with considerable stabling capacity. It was a simple regime of herding livestock in the surroundings and driving them back to the farm at night. In the Iron Age, farmhouses had limited stabling capacity and supposedly more time and energy was put into arable farming and the laying out of (Celtic) fields. Shifting one's fields around and overseeing the crops to ensure a good harvest may have caused the replacement of old farmsteads in the vicinity of the new fields.

## Angelslo and Emmerhout

The Angelslo-Emmerhout excavations took place during the development of the eponymous residential areas. Trenches cut for the construction of roads and foundations were closely supervised and thus served as trial trenches. When settlement traces were encountered, it was often possible to expand into adjoining excavation trenches, but obviously by no means all of the settlement margins could be uncovered. In this way several scattered settlement vestiges with isolated and clustered house plans were recorded. The dating of these farmhouse plans ranges from the Middle Bronze Age well into the Iron Age. From the overall excavated evidence it can be concluded that

although the area was occupied for a long time, this does not go for every individual location. Various scattered sites were simultaneously occupied, be it that on close inspection the picture is a varied one. For instance, there are clusters with just one type of house plan, apparently representing successive farms during a limited time span, and within a fixed farmstead area (Fig. 4.8: A). After a period of occupation such a farm was evidently moved away. This applies equally to sites with the Emmerhout type, the Elp type or the subsequent Iron Age farms.

Alongside these there are groups that, besides the Emmerhout and Elp types, also include types of the Iron Age (Fig. 4.8: B). This suggests continuity of the farmstead from the Middle Bronze Age right into the Iron Age. Indeed, a successive use of farmhouses of the Emmerhout and Elp types is likely, although gaps in such a site's occupation cannot be ruled out.

Besides the evidence of complete rebuilding, there also is the phenomenon described above of multiple alterations, which also points to prolonged occupation. This applies to for instance plan no. 36 at Angelslo, which has an overall length of 75 meters. In this case this is the result of five phases, representing an Elp type farmhouse with four alteration episodes (Fig. 4.8: C).

To summarize, there is wide variation in the degree of continuity and duration of occupation per farmstead. Each farm applied its own range of solutions. In one case this might be a succession of new structures built in the current style; in another, an existing farmhouse might be extended and renovated several times.

## Borger

The most recent discovery is the settlement site in the Daalkampen area west of Borger, which is a still ongoing investigation (Kooi and De Wit 2003; 2005). The settlement site is transected by the N-374 trunk road, which means that part of the site was destroyed in the recent past. The part excavated so far has produced farmhouse plans of the Bronze and Iron Age (Fig. 4.9). The western part revealed a large concentration of house plans from the Middle and Late Bronze Age. Besides four houses of the Emmerhout type, the Elp type predominates with sixteen specimens. The northern cluster of three farmhouse plans apparently represents a farmstead that was occupied for a long period, as was also observed at Angelslo-Emmerhout. Towards the east, the number of Iron Age type farmhouse increases. Insofar as can be established, this points to habitation shifting in an easterly direction. From this area a series of samples of charred grain were radiocarbon dated. The oldest (GrA-23258) is  $2735 \pm 40$  BP, the youngest date (GrA-23263) comes to  $2190 \pm 40$  BP. The eastward shift of the settlement continued through the Roman period right up to the heart of the historical village.



Fig. 4.8 Angelslo-Emmerhout (drawings by J. H. Zwier; G.I.A.). Legend:

A: Cluster of four house plans of the Emmerhout type (nos 31, 33 and 34) with granaries (nos 43- 47). Charcoal from posthole 31 (GrN 6133) was dated  $3240 \pm 35$  BP. Charcoal from a hearth pit in plan 32 (GrN 5775) was dated  $3090 \pm 60$  BP;

A': Excavation plan of area A, showing all excavated features associated with house plans 31 to 34 (drawing by G. Delger, G.I.A.);  
 B: Cluster of farmhouse plans of the Emmerhout type (no. 11), Elp type (nos 12 and 13) and an Iron Age house plan (no. 10) with granaries (nos 18a and 49 to 54);

C: In a somewhat isolated position lay plan no. 36, the result of four alterations (cf. fig. 5). Associated with it is a small separate cowshed (no. 37), part of a barn or cowshed (no. 38), granaries (nos 37 to 40) and an enclosed paddock (A)



Fig. 4.9 Borger. Schematic overview of the house plans and granaries from the settlement excavations of 1994, 1995, 1997 and 2002 (drawing by J. H. Zwier; G.I.A.). Legend: 1: Emmerhout type; 2: Elp type; 3: Iron Age type

## To conclude...

Excavations of Bronze Age settlement sites in Drenthe produce a wide range of house and farmstead shapes. We may observe apparently individual solutions in the construction of the farmhouse, but these still are subordinate to general trends. Characteristic is the method of material-saving construction by maintaining parts of the farmhouse in combination with partial new construction. This phenomenon seems to occur widely in the settlements on the Hondsrug ridge, but is curiously absent at Hijken. The construction of a farmhouse apparently underwent a logical evolution, in which the byre section through time became longer and was fully compartmented into stalls by means of partitions and extra posts. Replacement of an early Emmerhout type by one of the later type and then by the Elp model seems to represent a logical sequence from a constructional point of view.

The diversity in size of individual settlements will in part be determined by the geographical situation and the area's farming potential: the degree of segmentation of the higher grounds by stream valleys and the natural boundaries created by peat bogs probably played a decisive role.

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## 5 Bronze Age occupation on coversand ridges of the Looërenk near Zutphen

*Jeroen Bouwmeester*

### Introduction

Over the last 15 years large-scale archaeological investigations took place in a former arable complex called the Looërenk, east of the town of Zutphen. The area was part of the extensive Leesten urban development plan. During the investigations traces of human habitation were found dating to several periods ranging from the Paleolithic until the present (Groothedde 1996; Groothedde *et al.* 2001; Bouwmeester *et al.* in press).

The Looërenk is part of a river dune that probably originated in the Late Dryas (around 11.000–10.000 year BP: De Mulder *et al.* 2003). The original topography of the river dune was rather uneven, but from the 15th century AD onwards the various depressions, 1.5 to 2 m below the present surface level, were levelled out by agricultural use of the landscape. This resulted in the present plateau of the Looërenk. In prehistoric times, however, the landscape consisted of dunes and depressions, on the west side bordered by the Ooyerhoekse Laak (brook) that meandered through a landscape of wind-borne sand deposits.

### Habitation

The prehistoric habitation on the Looërenk was chiefly concentrated on higher parts of the wind-borne sand dunes (Fig. 5.1). Strikingly, the distribution of the various habitation clusters is not spread across one sand ridge inhabited over a long period of time; the sites always moved after one or a few generations. In some instances after a while habitation returned to a former location. This seems to have been the case in particular in the middle zone of the area under investigation.

I will discuss a number of house plans that were discovered in the area and subsequently try to make inferences about the development of farmyards and settlement patterns.

### *Early Bronze Age*

The oldest habitation on the Looërenk appears to have taken place in the Early Bronze Age (2000–1850 BC). This site was recognized in the field because of the many sherds with Barbed Wire decoration found in the soil-layers while digging down to the feature level. More sherds came from a tree throw hollow that was later filled with settlement material. In the field no clear building structure could be recognised. However, during post-excavation analysis, a tentative house plan was recognized in the field drawings (house 1; Fig. 5.2). This house plan is 30 m long and 7.5 to 8 m wide. Especially the long eastern wall of the building and the short southern end lack postholes. This might be due to the poor state of preservation of these features. Datable finds from the postholes are absent. However, the pottery mentioned above, found when opening up the trench, would suggest an Early Bronze Age date.

Its irregular form and incompleteness make the claim that this really is a house difficult. All regularity seems to be lacking. Neither are inferences possible about functional differentiation. The problem here is that there are only a few claimed houses that date to this period, notably in Noordwijk (Jongste *et al.* 2001; Van der Velde, this volume), Molenaarsgraaf (Louwe Kooijmans 1974) and Vasse (Verlinde 1984). They all seem to have a rather irregular form in common. In fact the Noordwijk house is the clearest and the only uncontested. The Vasse house plan, the only other example attributed to the east of the

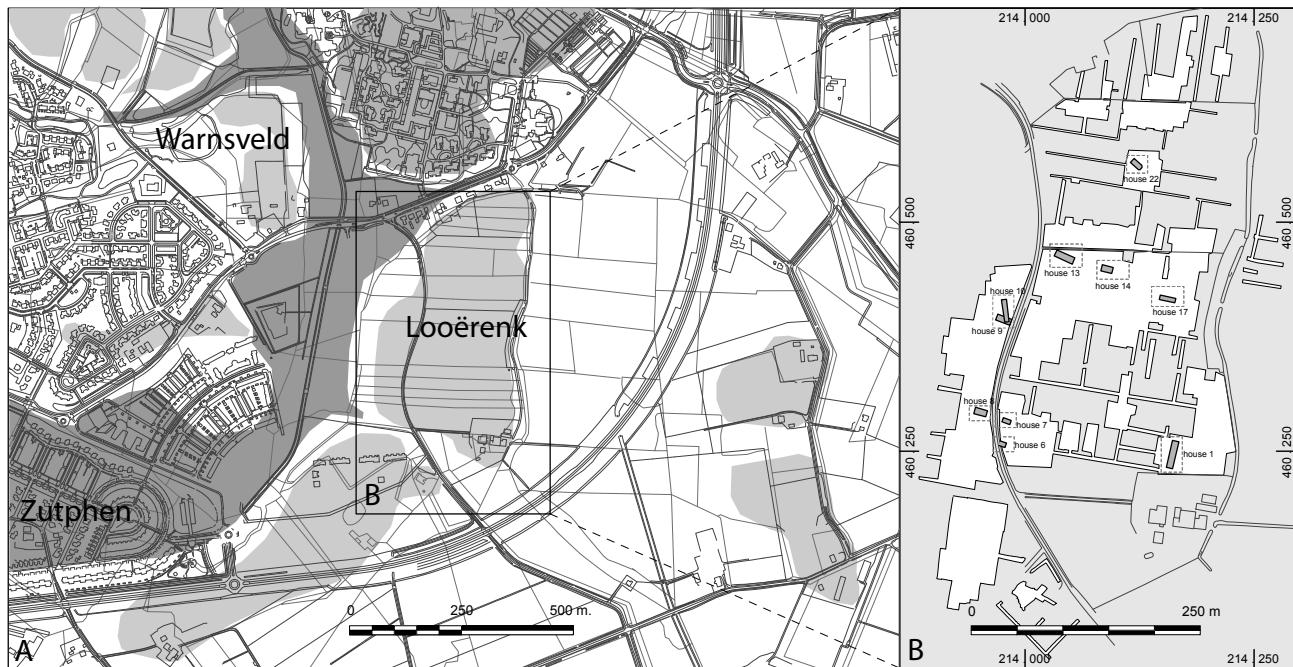


Fig. 5.1 Location of the excavation site Zutphen-Looërenk

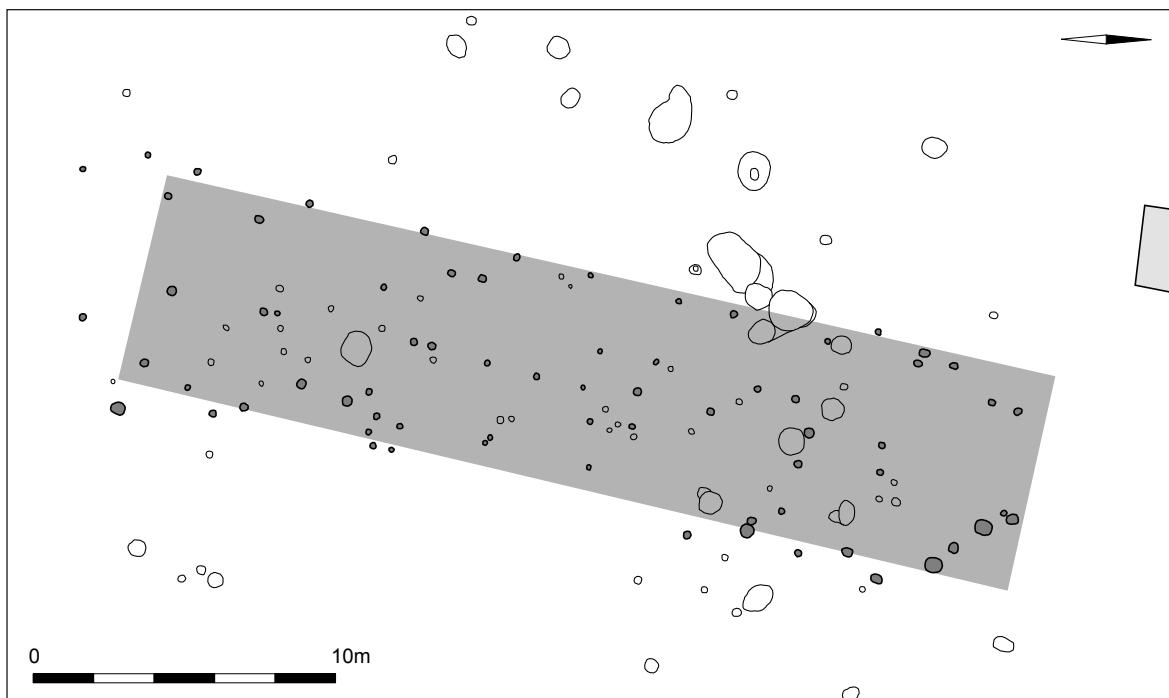


Fig. 5.2 House 1 (Early Bronze Age)

country, is disputed (Fokkens and Roymans 1991, 15). The proposed Zutphen house lacks a clear form, although a two-aisled structure seems to be present. Its character remains dubious, but for the moment I propose to consider it a possible house until the opposite can be proven. Since all plans claimed to be of Early Bronze Age date lack clear structure, even the Noordwijk one, the possibility remains that house 1 of the Looërenk will prove to be a valid house plan after all.

### Middle Bronze Age

The next phase of habitation dates in the Middle Bronze Age. Several buildings can be assigned to this phase. Farms from the Middle and Late Bronze Age from the north and east of the Netherlands are often classed with the Drenthe types of Emmerhout or Elp, which appear to be also slightly different in age (Huijts 1992; Fokkens 2001; Kooi, this volume). However the Zutphen house plans are difficult

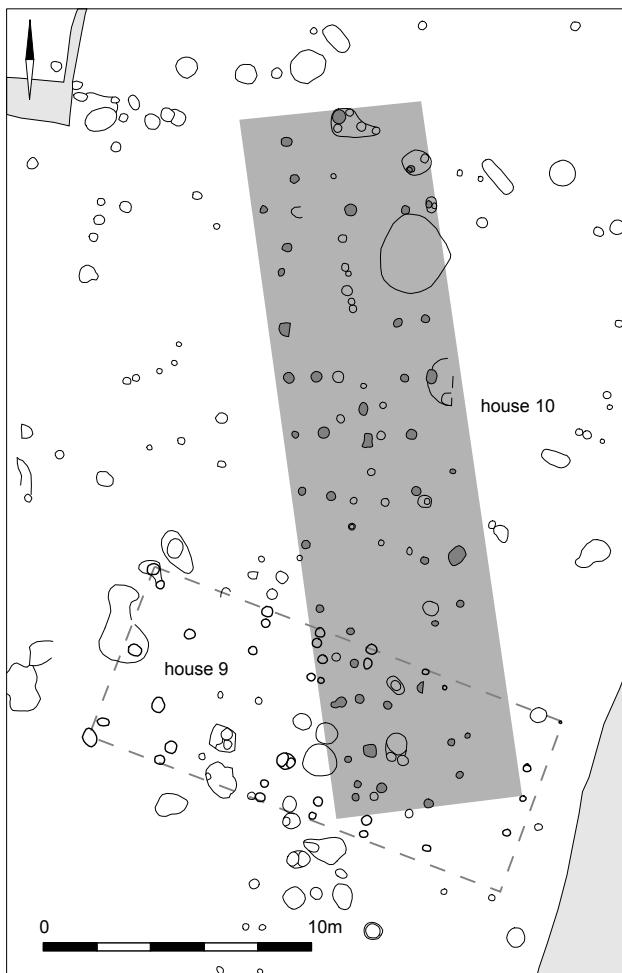


Fig. 5.3 House 10 (Middle Bronze Age – early Late Bronze Age). House 9, dated to the Late Bronze Age or Early Iron Age, cross-cuts this building

to class with either of these types. Many house plans have one or more characteristics of the Emmerhout type as well as characteristics of the Elp type (cf. Bouwmeester *et al.* in press). In general the Zutphen plans appear to date from the second half of the Middle- and the early Late Bronze Age.

One of the house plans dated to the Middle or Late Bronze Age is house 10 (Fig. 5.3). This is a farmhouse building of probably 26 m long and 5.5 m wide. The building is orientated north-south. It is situated on an elongated sand ridge also extending north-south. West of this ridge flows the Ooyerhoekse Laak. House 9, dated to the Late Bronze Age or Early Iron Age, crosscuts this building.

House 10 is clearly not as well preserved as house 9. Although the features that are attributed to the house are on average between 15 and 20 cm deep, only the middle part of the building appears to conform to the normal Middle Bronze Age house plan. The building was recognized during post-excavation analysis, as during fieldwork the features from the overlapping houses 9 and 10 could not yet be disentangled.



Fig. 5.4 House 9 (Late Bronze Age – Early Iron Age) and house 10 (Middle Bronze Age – early Late Bronze Age)

The supposedly three-aisled structure of house 10 seems to date the house to the Middle or Late Bronze Age. In the immediate vicinity of the house plan no features with pottery were found that could have provided a date for the building. However, at approximately 35 m distance from the farm there are three pits with pottery from the Middle Bronze Age. In fact, they can only be attributed to house 10, as house 9 is on typological grounds considered too young to be associated with these pits.

#### **Late Bronze Age or Early Iron Age**

House 9, cutting the house plan described above, is the clearer of the two. House 9 is at least 16.5 m long and 5.5 m wide. Neither short sidewall could be identified convincingly, which makes the overall length uncertain (Fig. 5.4).

House 9 is difficult to date on the basis of associated material. On opening up the trenches, Bronze Age as well as Iron Age pottery was found. Also from the postholes ascribed to house 9, Bronze Age as well as Iron Age pottery originates. This is not remarkable since older

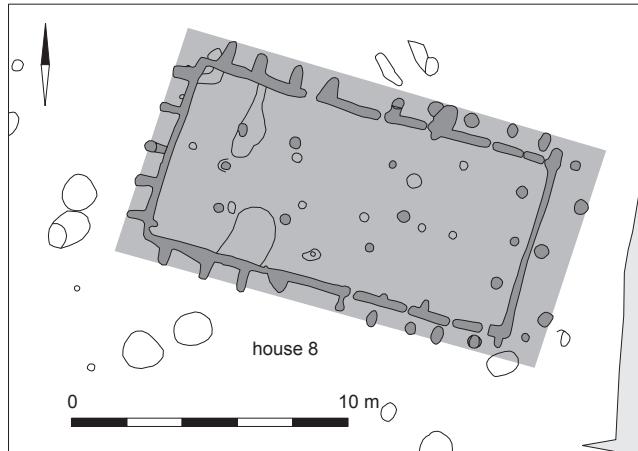


Fig. 5.5 House 8 (Early Iron Age)

pottery may have ended up in more recent postholes. Not many exactly comparable house plans have been found elsewhere, because the Late Bronze Age – Early Iron Age houses in general show external postholes that are offset from the wall posts a bit further. Generally these exterior posts are thought to have supported the roof beams (Fokkens 2001; Huijts 1992; Fokkens and Roymans 1991). Comparable examples, however, can be found in Raalte-Raan and Deventer-Colmschate, both situated in the eastern Netherlands (Groenewoudt *et al.* 2000; Verlinde 1991). The plan in Raalte is dated to the end of the Late Bronze Age and the plans in Deventer-Colmschate to the Early Iron Age. The presence of Iron Age pottery in the direct vicinity of house 9 and the lack of other structures could possibly indicate an Early Iron Age date.

Like the plans of Deventer, the plan of house 9 is three-aisled. A difference here is that the walls in Deventer show up as wall trenches, here as separate posts, but constructively there is hardly a difference. A ridge beam supported by central posts is not in order here. The function of the ridge beam, mainly serving to keep the rafters in position, could very well be adopted by the two upper purlins. The roof was chiefly supported by a row of trusses. Presumably the corners of the trusses were connected across the length of the building. The rafters were laid on these connecting plates. The double row of exterior posts served to receive the outward forces pushing on the lower part of the rafters. No traces of entranceways or indicators for the internal layout of the farm were found.

Very often Early Iron Age houses show wall trenches instead of posts. In the south as well as in the north of the Netherlands many of these house plans have been excavated (Huijts 1992, 66–71; see also many examples in Fokkens and Roymans 1991). House 8 (Fig. 5.5) is a very fine example of this type. House 8 is 13 m long and 6 m wide inside the walls. The building is situated in the south-western part of the excavated area, in the midst of a number of other similar houses. In the vicinity there were one or two storage structures. The plan is preserved particularly well. The very clear structure of the building led

to its recognition already in the field during the excavation. The building can be dated convincingly to the Early Iron Age, both on typological grounds as on pottery recovered from the features.

The farm appears to have four aisles, but in fact the structure is three-aisled with two ridge posts on either side of the house and one in the middle. The ridge posts on either side of the house are a consistent feature of Early Iron Age houses. They are thought to have been constructively necessary to support the hipped roof. Generally entrances are found on the long sides of the house, facing each other, but in this case the wall trenches show no or only very narrow interruptions. This may indicate that the doorway had a threshold embedded in the trench, which makes the real entrance archeologically invisible. In fact the principle of an entrenched threshold is nicely visible in the contemporaneous house 13 (see below).

The sections across the length of the slot trenches did not show any separate stakes indicating a wattle wall. However, a sleeper beam interrupted by a wall post near the exterior posts was evidenced for. In this way the construction of walls within the frame was made possible. This principle is well known from medieval half-timber buildings (pers. comm. R. Gruben, BAAC). Vertical stakes were placed between the sleeper beam and the top beam and wattle and daub was applied for the wall.

Firm indications for the internal functional layout of farms of this type are lacking. I have the feeling that these houses were too small to house people and cattle, but in fact there is nothing to corroborate this hypothesis. Within this group of slot-trench houses a number of more recent house plans was identified. One of these plans is house 13, which was already recognised during fieldwork. House 13 was originally 12.5 m long, but was extended to 22 m at a later date (Fig. 5.6). The width of the building was 6 m inside the walls. The building was orientated east-west. The extension cannot only be recognized by a slight bend in the exterior wall, but also by the fact that another building method for the wall had been chosen.

The typology of the building points at an Early Iron

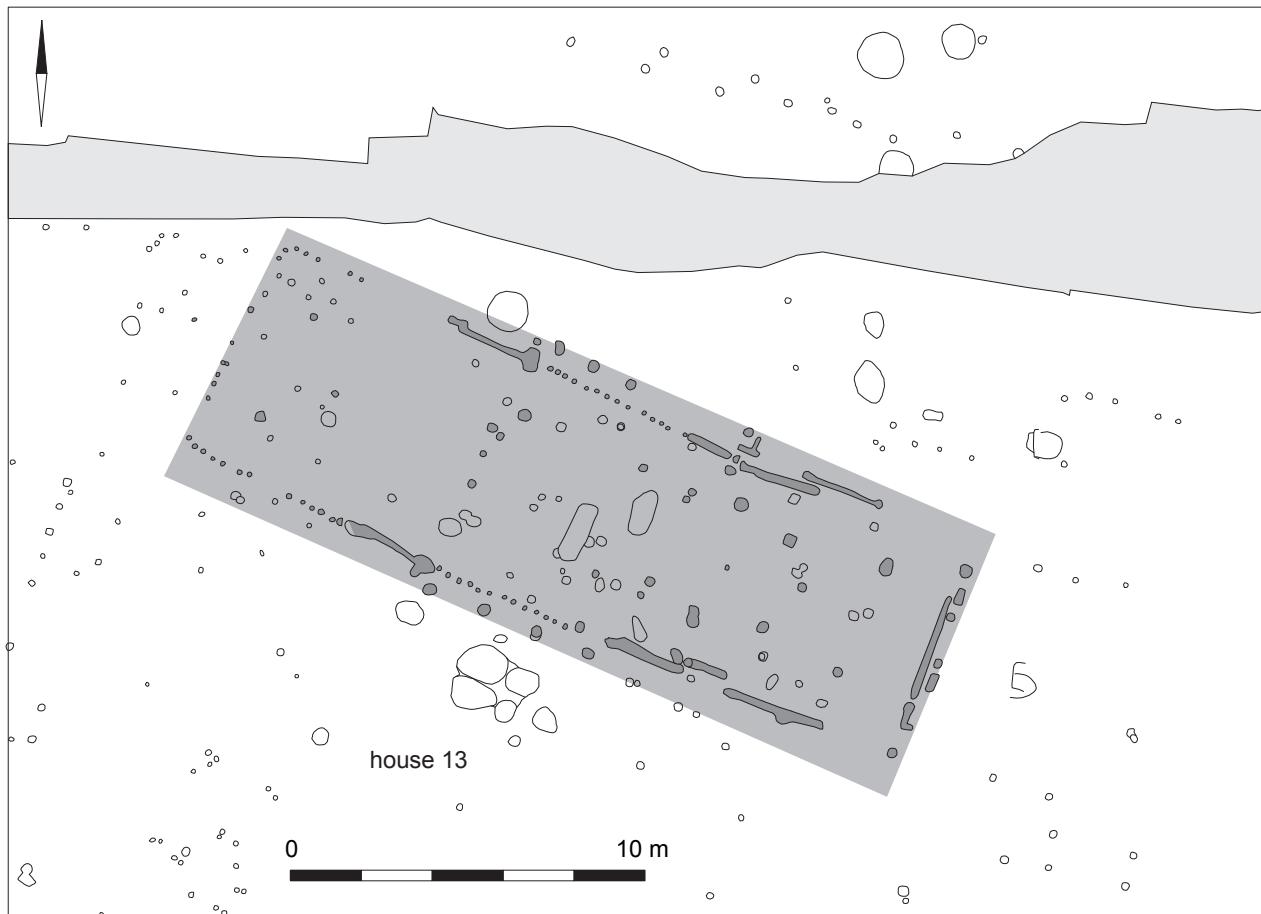


Fig. 5.6 House 13 (Early Iron Age)

Age date. The pottery found in and around the postholes supports this assumption. Charcoal from a pit right next to this building has been dated between 815 and 595 BC. The building was probably three-aisled. The original walls can be recognized by lines of stakes. On either side of the long walls, in the middle, slots are visible for the timbers forming the doorsteps for the two entrances. No truss construction seems to have been present. In some reconstructions such a truss was sometimes replaced by a single central post which would adopt the role of the truss by means of an upright cross (Verwers 1972, 84; Huijts 1992, 85; Schinkel 1998, 44).

Another striking phenomenon of this plan is the fact that the exterior posts are lacking from the older part as well as from the more recent one. Exterior posts can only be identified in the middle of the extension. In view of the depth of these posts and the careful excavation of the building, it is not likely that these postholes disappeared in the course of time or that they were overlooked during the investigation. Possibly the posts mentioned played a part in the construction of the extension of the building. The building was at a given point extended towards the east. When extending the building, the walls were entrenched in slots, as could be observed at house 8.

## The development of the Looërenk settlement

The earliest demonstrable farm or at least inhabited area dates to the Early Bronze Age. It is situated on top of a wind-borne sand top surrounded by natural depressions. The top was not pre-eminently suitable for arable farming. The top was small and the surrounding sand tops hardly constituted a continuous arable area. The possibilities for cattle farming were much more favourable than for arable farming. The areas around the farm were ideal pastures and the cattle could be housed in the main building. There are few remains left of the farm, except for a great number of postholes and a group of pits immediately next to the building. These pits contained much Barbed Wire pottery.

The Looërenk was very probably abandoned for some centuries after this initial phase of occupation. In the second half of the Middle Bronze Age the area is once again occupied. The farms from the Middle Bronze Age and the first half of the Late Bronze Age clearly show signs of development in construction techniques. There is no clear distinction between buildings of the earlier type (Emmerhout) and the later type (Elp) as in Drenthe. On the other hand, the Early Iron Age houses of the eastern Netherlands (like house 9) seem to have a characteristic

element that is typical for the area: The posts outside the walls of the house are in comparison to their southern Dutch contemporaries very close to the wall.

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## 6 The Middle Bronze Age farmstead from Rhede (North Rhine-Westphalia, Germany)

*Stephan Deiters*

### Introduction

Until recent years, research into Bronze Age of Westphalia has mainly been focussed on cemeteries (Wilhelmi 1981; Wand-Seyer 1985; Mecke 1998; Rüschoff-Thale 2004). A number of investigations of funerary sites have been published and some others will be available soon (for instance Deiters and Reckling forthcoming; Herring forthcoming). In contrast, the archaeology of Bronze Age settlement sites seems to have been neglected. In the past, the only detailed published and supra-regionally known settlements were Telgte-Woeste (Polenz 1980; Reichmann 1982) and – less known – Telgte-Raestrup (Wilhelmi 1983, 50–61).

In the last years, the archaeology of the Bronze Age settlements gained more importance.<sup>1</sup> One of these recently discovered sites lies at Rhede (district Borken), where an excavation of about 1.5 ha was conducted in several campaigns during the years 2001–2004 by the Westfälisches Museum für Archäologie/Amt für Bodendenkmalpflege, Gebietsreferat Münster under the direction of Jürgen Gaffrey. Rhede is situated in the western Münsterland at less than 10 km distance from the Netherlands. The excavation was necessary due to construction works for a new road (B67n). The site is situated south of the municipality Rhede near a river called 'Bocholter Aa' (a confluent of the 'Oude IJssel') in the vicinity of the confluence of the brook 'Rheder Bach' (Fig. 6.1). The Bocholter Aa flows straight from east to west at this point and the excavated area is situated on the right (northern) terraced riverbank. The heightened location above the water level decreases the risk of floods to a minimum. The subsoil consists of sand, which is covered with a plaggens soil. The plaggens cover is

mostly 30–40 cm thick, in former depressions even up to 1 m. The absolute altitude of the excavation level was c. 29 m. Some other prehistoric sites are known in the surrounding area. Important is a nearby cemetery, about 1 km north of the settlement site, where in a partial excavation about 200 urnfield cremation graves (Niederrheinische Grabhügel Kultur) from the Late Bronze Age and Early Iron Age were discovered (Mecke 1998). Middle Bronze Age graves have not been detected, but since such cemeteries in western Westphalia were usually used from the Late Neolithic or Early Bronze Age/Middle Bronze Age to the Iron Age (summarised: Jockenhövel 2003), we may assume, that already in Middle Bronze Age people were buried there. Another important settlement site is located to the west at Bocholt, where amongst other things an Early Bronze Age house was found (Deiters 2004). The two sites lie only 2.5 km apart and show similar topographic situations. They are separated by the course of another brook. An adjacent burial ground is also recorded for the Bocholt settlement site.

During the excavations at Rhede, finds from different prehistoric periods were found, the oldest being an Early Neolithic adze. This came as a surprise since there is a lack of Early Neolithic settlement remains not only in the areas nearby but also within a wider (c. 50 km) region. The first indications for actual settlement activities in Rhede can be seen in pottery dating to the Late Neolithic and the Early Bronze Age. Remarkable is a Late Neolithic vessel, which was found standing upside down in the sand. The oldest recognised buildings date to the Middle Bronze Age (preliminary report: Gaffrey and Deiters 2005), while other important settlement remains at Rhede date from the Iron Age, Roman period and Early Medieval times.

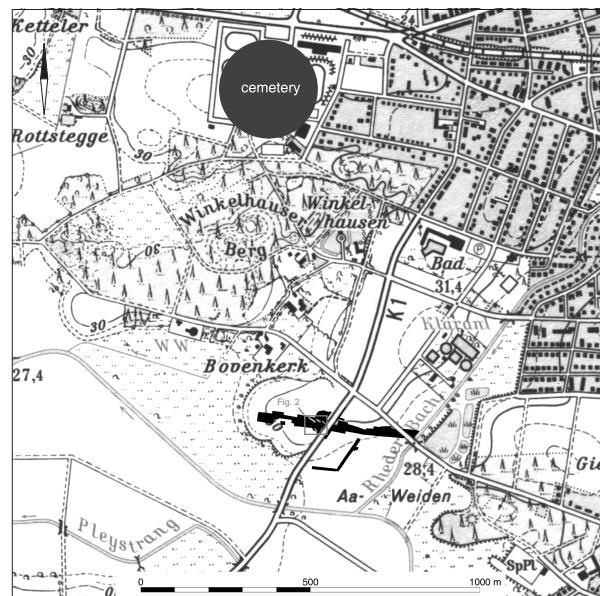


Fig. 6.1 Rhede. Location of the excavation

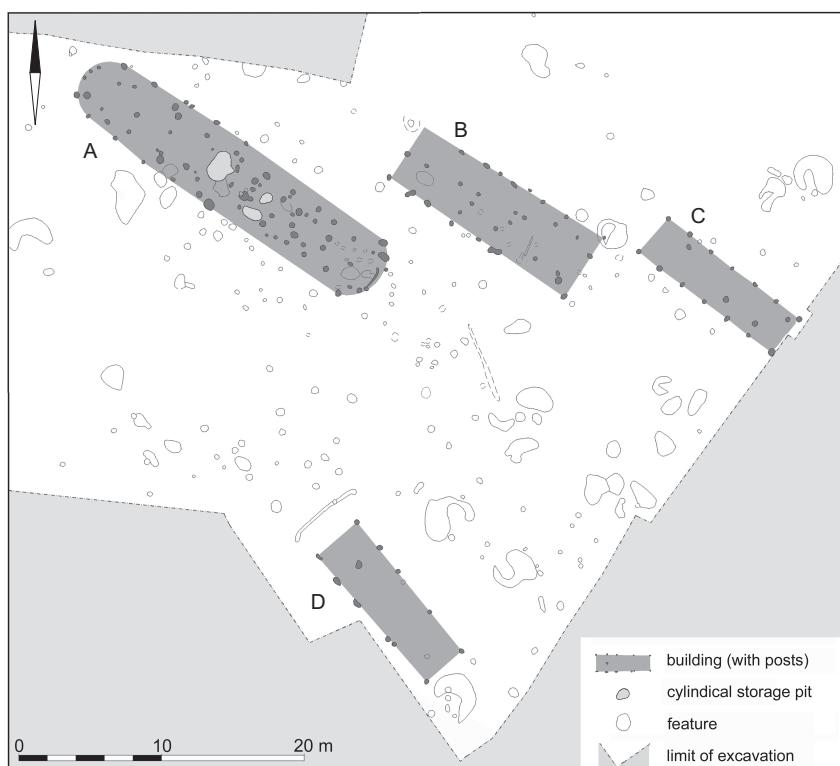


Fig. 6.2 Rhede. Plan of the Middle Bronze Age buildings

## Middle Bronze Age buildings

For four buildings a Middle Bronze Age date is assumed (figs. 2 and 3). For buildings A and C radiocarbon dates are available (Fig. 6.6), whereas B and D lack datable material. All these buildings are situated quite close together and all show a northwest-southeast orientation, which strikingly

differs from the direction of the younger buildings from this site. The corresponding orientation of the four buildings suggests that all might have belonged to a single settlement phase.

The three (or possibly four) aisled building A measures approximately 25 x 5 m and shows apsidal short sides. Cattle stalls were not recovered, whereas in the middle

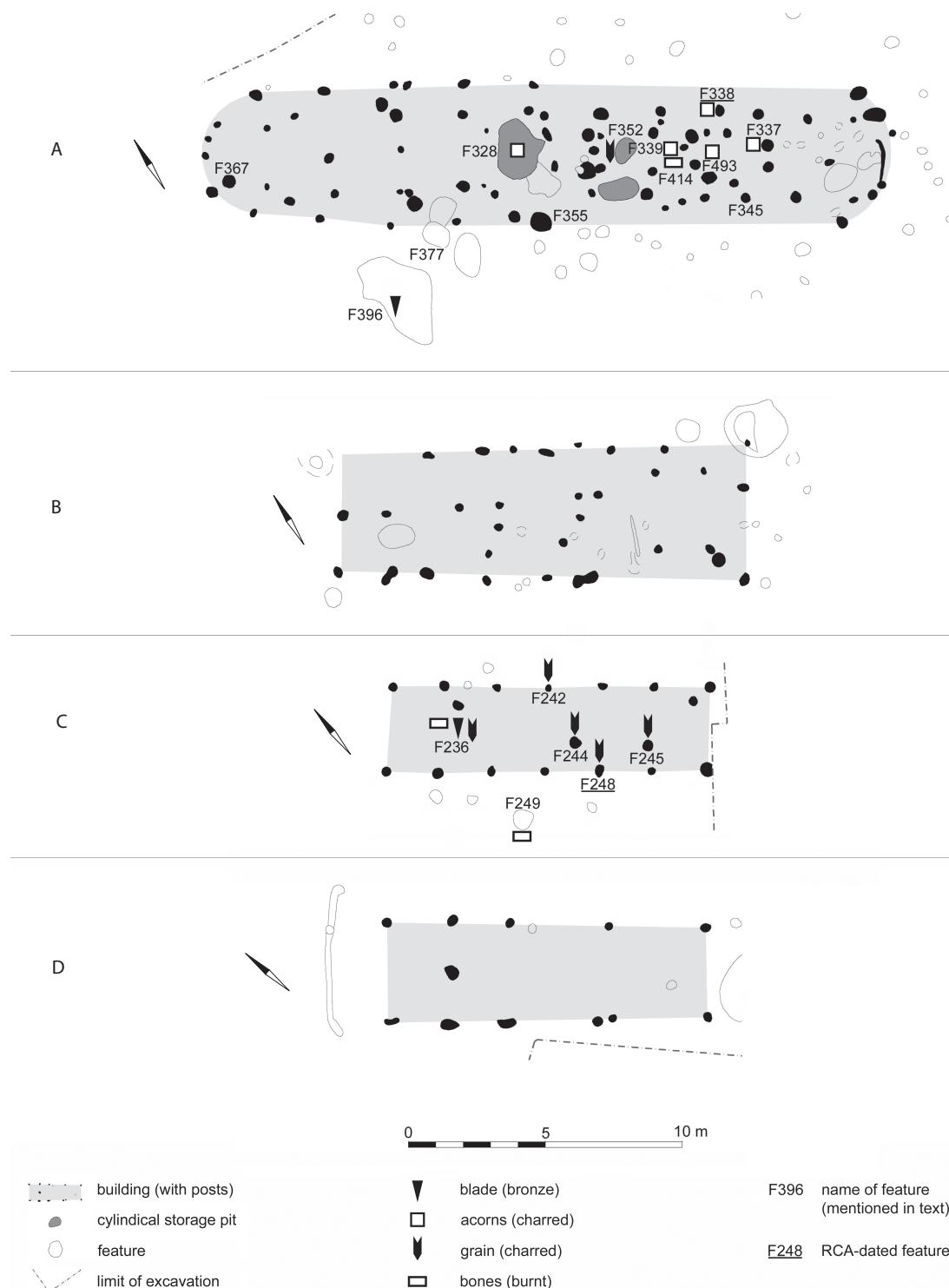


Fig. 6.3 Rhede. Middle Bronze Age buildings in detail

part of the building several cylindrical pits, with a depth down to 1.3 m under the excavation level were investigated. These were supposedly storage pits.

It's not clear where the entrances were situated. There are several good parallels for building A known from the eastern Netherlands (esp. type Emmerhout), eastern France and – the best parallel – Telgte, Westphalia (cf. Huijts 1992;

Harsema 1997; Reichmann 1982). The other buildings from Rhede appear to be much simpler constructions. They are rectangular and show no apsidal short sides. Merely building B shows a quite complex internal structure. It cannot be excluded that the buildings had lightweight constructed external walls, which were not recognised during the excavation, and that the houses were actually



Fig. 6.4 Rhede. Building A, pottery: A: F328 (pit); B: F339 (above planum); C: F345 (post); D: F352 (pit); E: F355 (post/pit); F: F367 (post/pit); G: F377 (post/pit); (drawings: N. P. Müller)

bigger than they appear now (esp. buildings C and D). A very similar, though unfortunately also undated parallel to building D, is known from Westphalia: building 8 from Bergkamen-Oberaden.<sup>2</sup>

## Pottery

Larger quantities of pottery sherds from many different vessels of various dimensions were found in the pits situated within building A and from the posts of this house proper (Fig. 6.4). In two cases handles could be identified, and some sherds are decorated, predominantly with fingernail- or fingertip-impressions. Similar sherds were recovered

as stray finds during the excavation. The buildings B, C and D contained no pottery at all. Altogether, the pottery of building A surprisingly resembles mostly to Middle Bronze Age pottery from southern Germany (cf. Pinsker 1993; Krumland 1998) and less to the known northwest European Middle Bronze Age pottery.

## Bronze blades

In Rhede two bronze blades were found in the Middle Bronze Age settlement context (Fig. 6.5).<sup>3</sup> One blade (Fig. 6.5: F236) was discovered in a posthole inside of building C (Fig. 6.3).<sup>4</sup> It is 13.4 cm long and the condition is excellent.

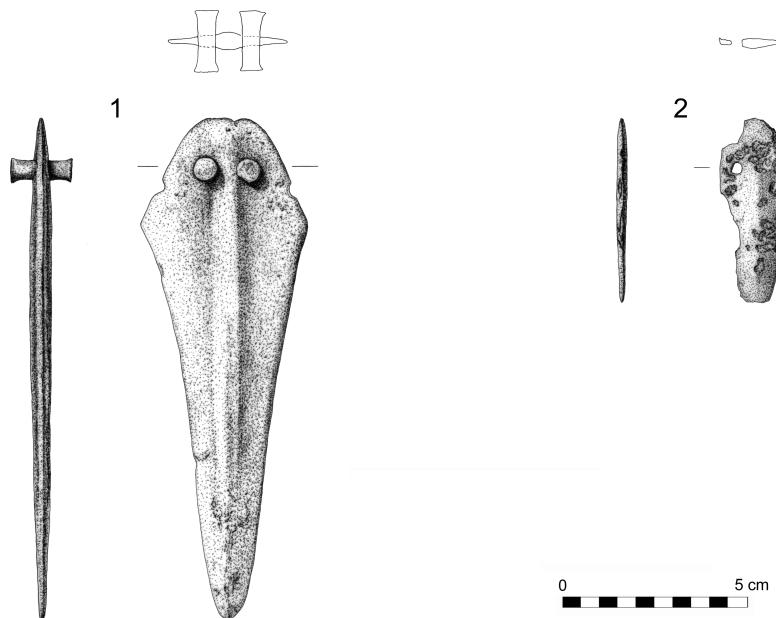


Fig. 6.5 Rhede. Bronze blades: 1: F236; 2: F396; (drawings: T. Maertens)

Lab. Nr.	Weighted sample (mg)	Object Inv. Nr.	Habitat	Fe	Co	Ni	Cu	As	Se	Au	Pb	Bi	Ag	Sn	Sb
FG-50586	12	Blade F236	Rhede "B67N"	0.16	0.01	0.65	84	1.01	0.020	0.07	0.05	< 0.01	0.03	14.1	0.33
FG-50585	9.4	Blade F396	Rhede "B67N"	0.42	0.01	0.18	78	0.89	0.009	0.04	0.08	< 0.01	0.04	20.0	0.54

Table 6.1 Rhede. Metal analysis of the bronze blades (by E. Pernicka)

There are no visible tool marks but traces of sharpening were found all over the blade, not only on the blade edges. The blade is broad, triangular and slightly asymmetrical. It has a stout midrib that continues into the hafting plate. The hafting plate is deep and angular. Two rivets are intact, placed centrally on either side of the midrib. The rivets are relatively stout, flat-topped with very little expansion of the heads. Two other notches on either side of the hafting plate may be remains of other broken rivet holes, but this would presume a disproportionately wide hafting plate.

A typological classification of the blade is difficult, because a quite exact match is not known. The main question is whether it is to be classified as a dagger or a halberd. Some of its characteristics suggest an interpretation as a halberd blade: broad, asymmetrical blade, stout midrib, and large rivets. An enlarged version would instantly be classified as a halberd. It especially reminds of some examples from Ireland (type Breaghwy) and Great Britain (cf. for instance Harbison 1969; O'Riordain 1936). The high amount of tin (see below) could suggest a British or Irish origin or influence, too (cf. for instance Jockenhövel 2004). However, it would be extremely short for a halberd, whose lengths normal range from 20 to 30 cm. Another argument against the interpretation as a halberd is its context. Halberds are generally dated to Early Bronze Age. If it really was a halberd, one must assume it to have been

an heirloom, which was deposited some centuries after its production. Furthermore it would be the first halberd ever found in a settlement context (cf. Lenerz-de Wilde 1991).

The other bronze blade was found 3 m southwest of building A. It was found in a much more corroded condition than the other one. It is still 4.9 cm long, but was originally a bit longer. There are two rivet holes visible. The shape is simple and it is undoubtedly a dagger. The metal of both blades from Rhede has been analysed by Ernst Pernicka (methodology: Lutz and Pernicka 1996; Table 6.1).<sup>5</sup> The analysis shows, that both consist of bronze with remarkable high percentages of tin (14.1 % and 20 %).

### Archaeobotanical analysis

Several samples from posts and pits were taken up for archaeobotanical analysis (carried out by Ralf Urz).<sup>6</sup> They were taken from buildings A and C while B and D were regrettably not sampled. The archaeobotanical investigations are not finished yet, but some preliminary results can be presented in this article. All the preserved remains are charred. Uncharred botanical remains certainly would not have been preserved in the local soil. In building A many acorns (*Quercus* spec.) were found in the storage pits and

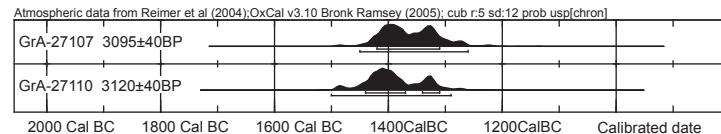


Fig. 6.6 Rhede. RCA dates and their calibration. Building A (GrA-27107) and building C (GrA-27110)

even some in a posthole. All acorns were peeled, which indicates that they must have been prepared for human consumption and not as food for animals. Furthermore, several rests of wheat were detected in the storage pits. Remarkable are several pieces (recently broken?) of bread or mash, in which fragments of wheat (*Triticum* spec.) were visible.<sup>7</sup>

In building C in each of the (sampled) postholes there was a handful of charred grains. The archaeobotanical results point to a cleaned and in-house stored cereal supply of different sorts of wheat (*Triticum aestivum/durum*, *Triticum dicoccum*) and barley (*Hordeum vulgare*). All these identified species are well known from other German Bronze Age settlement sites (cf. Jockenhövel 1997, 157–162, 231–235).

## Bones

In the area of the Middle Bronze Age finds, bones were found at three spots (Fig. 6.3: building C, F236 and F249; Fig. 6.3: building A, F414). These bones were burnt, otherwise they would have not have been preserved in the local soil. The bones were analysed by Manfred Kunter.<sup>8</sup> In two cases (Fig. 6.3: building C, F236 and F249) small amounts of bones belonged to unidentifiable mammals (but surely not human). At the third spot (Fig. 6.3: building A, F414) however 20 grams of completely burnt bones, fragments of cranium and long bones, were detected. They belonged to an adult human (slight tendency male).

## Radiocarbon analyses

As of yet, two radiocarbon dates are available. Small samples of acorns (Fig. 6.3: building A, F338) and grain (Fig. 6.3: building C, F248) from postholes were dated with the AMS-method.<sup>9</sup> The results are listed below (Fig. 6.6). Both samples produced very similar dating ranges, which clearly date to Middle Bronze Age-B.<sup>10</sup> These results show that both buildings could well have been contemporary.<sup>11</sup>

## Synthesis & discussion

The Middle Bronze Age features and finds from Rhede can be considered a stroke of luck for settlement research of the continental northwest European Bronze Age. Building A has quite a few parallels in Continental Northwest Europe.

It seems to have been the main building of a farmstead and certainly functioned as a residential building, but also larger quantities of food supplies were stored here. If the pits recovered actually were in use when the house was inhabited, it is not likely that cattle will have been stalled in this central part of the house. Positive evidence for cattle stalling is, unfortunately, altogether lacking. The other buildings seem to be outbuildings, like stables, barns or granaries etc. Maybe they were even multifunctional.

The Middle Bronze Age pottery shows affinities that might hint of contacts to southern Germany. Such an influence from the south is well known for the pottery of the subsequent Niederrheinische Grabhügelkultur (NGK). In Rhede, such connections with the south can now already be postulated to have existed during the Middle Bronze Age.

The human remains justify some more discussion. They were found at a spot situated in the south-eastern part of building A close to some pottery (Fig. 6.4: B, F339), but not in a clear context. The presumed temperature of cremation and the fragmentation into small pieces makes it implausible that the person died in ‘normal’ fire-disaster. This person was probably cremated on a kind of funeral pile. Unfortunately, a radiocarbon date for the bones is not yet available. So it is still possible – although not probable – that they are the remains of a cremation grave dating to another period. The bronze blades are very remarkable finds, too. One surely is a dagger. It’s arguable whether the other one is a dagger or a halberd. Nevertheless, there is no doubt, that both are weapons, possibly of an Irish or British origin. Generally, finds of metal objects in Bronze Age settlements are rare in Northwest Europe. Finds of weapons are extraordinary (cf. Fontijn 2002, 144–147, 374–375), but not unknown.<sup>12</sup> In the western Münsterland region, where Rhede lies, there are only a few metal finds from the Middle Bronze Age known. These metal finds are normally single finds, discovered as stray finds. Burials of this period in most cases contain no grave furnishings (Herring forthcoming) and there is also an apparent lack of hoards. But from the near Lower Rhine river, e.g. at Wesel, which is only 20 km away from Rhede, some bronze finds are recorded, which presumably entered their watery contexts during sacrificial offerings (Weber 1995). The radiocarbon dates indicate a phase of use between 15th and 14th century BC (1 sigma calibration).

For the overall interpretation of the Middle Bronze Age remains from Rhede some explanations are possible. Different factors are exceptional: remains of charred food (at least in two buildings), the weapons (found in or nearby

a building) and burned human bone in the main building (but dating not proved yet). An important insight in the rituals performed to 'end' the life of the farmstead (cf. Van den Broeke 2002) is provided by the post (or post sized pit) belonging to building C. In this quite small feature, charred animal bones, charred grain and an unburned bronze blade (dagger or halberd) were found. It is nearly impossible that this combination is accidental. Rather it suggests a conscious deposition, possibly connected with the abandonment of the farmstead.<sup>13</sup>

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T. Angerer (Münster): discussion; S. Arnoldussen (Leiden): discussion; D. R. Fontijn (Leiden): discussion; J. Gaffrey (Münster): excavator, discussion; C. Grünewald (Münster): discussion; A. Jockenhövel (Münster): discussion; M. Kunter (Gießen): analysis of bone material; J. N. Lanting (Groningen): radiocarbon analyses; T. Maertens (Münster): drawings (bronzes); R. O'Flaherty (Dublin): discussion (blades); E. Pernicka (Freiberg/Tübingen/Mannheim): analysis of metal finds; N. P. Müller (Münster): drawings (pottery); A. Rau (Kiel): discussion; B. Stapel (Münster): discussion; R. Urz (Köln): archaeobotanical analysis.

## Notes

- 1 Recently, an Early Bronze Age house from Bocholt was published (Deiters 2004). Another important site is Dortmund-Oespel (Brink-Kloke and Meurers-Balke 2003), which is situated at the Hellweg, an old trade route. In Dortmund-Oespel groups of cylindrical storage pits filled with large quantities of charred cereals and peeled acorns were found. The features are radiocarbon dated to the Middle Bronze Age and are interpreted as relicts of a trading station.
- 2 Cf. Eggenstein 2003, 17–18, 104, 225, tab. 2 – The measurements are not clear. The text states "8 x 3 m", but the scale on tab. 2 is specified 1:100, that would be 5.5 x 2 m.
- 3 It cannot be excluded, that other small bronze objects were overlooked, because a metal detector could only temporarily be used during the excavation.
- 4 The description of this blade and many hints and help I owe to R. O'Flaherty (Dublin). It is very likely that the posthole belonged to building C, because it contained – like the other posts of the building – charred grain.
- 5 Institut für Ur- und Frühgeschichte und Archäologie des Mittelalters, Universität Tübingen/Curt-Engelhorn-Zentrum Archäometrie, Reiss-Engelhorn-Museen, Mannheim. Zn und Te have been analysed too, but were below the detection limit (c. 0.01%).
- 6 Institut für Ur- und Frühgeschichte, Labor für Archäobotanik, Universität zu Köln; results taken from an internal preliminary report.
- 7 As several investigations show, bread was a common grave furnishing during the Late Bronze Age and Early Iron Age

in Westphalia, for instance in the cemetery at Rhede (Mecke 1998, 21–24; Wahren 1987).

- 8 Anthropologisches Institut, Justus-Liebig-Universität Gießen.
- 9 Analysis: Groningen Institute for Archaeology (GIA), Universiteit Groningen (J. N. Lanting).
- 10 Calibrated with OxCal 3.10 (2004): GrA-27107 1430–1310 BC (1 sigma), 1440–1210 (2 sigma); GrA-27110 1440–1310 (1 sigma), 1500–1260 BC (2 sigma).
- 11 It's impossible to prove contemporaneity with radiocarbon dates that often span several centuries in calibrated age.
- 12 At the Middle Bronze Age settlement at Eigenblok in the Netherlands a dagger – amongst other bronze objects – was found near a house (Jongste 2002). In Harsefeld (district Stade, Lower Saxony, Germany) a fragment of a sword stuck upright in the ground, apparently in a house (Ziermann 2004, 407–408). New is a find of a bronze spearhead found in the post of a house in Rhenen (Van Hoof and Meurkens, this volume).
- 13 An interpretation as abandonment deposits was suggested for the bronzes from the Middle Bronze Age settlement of Eigenblok in the Netherlands (Jongste 2002). Similar rituals are presumed for southern England (Brück 1999a; 1999b; 1999c; 2006).

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# 7 Rhenen-Remmerden revisited: some comments regarding site structure and the visibility of Bronze Age house plans

*Leon van Hoof and Lucas Meurkens*

## Introduction

During February and March of 2005 excavations were undertaken in the municipality of Rhenen by Archol bv, the excavation unit associated with Leiden University. The reason for this was the extension of an industrial area at the location Remmerden. The archaeological value of this location has been known since the 1980's, when many archaeological finds were made during the construction of the existing part of the industrial area. Therefore, when plans were made to extend this existing part, archaeological research had to be carried out. This consisted of a first phase of auguring (undertaken by RAAP: Visscher 1996) and a second phase of excavation (carried out by the Archeologisch Diensten Centrum: Jongste 2001). The view at that time, based on a relatively small sample of the area, was that the location of Remmerden had been used as a habitation site and that most of these habitation activities should be dated in the Early Bronze Age.

During pre-construction activities at the location in December 2004, amateur archaeologists found pieces of cremated bone and ceramics that were interpreted as urns. These new finds challenged the existing assessment of the site. Due to these finds the State Service for Archaeological Investigations (ROB) and the Provincial Archaeological Department (province of Utrecht) decided that additional trial trenches and a limited archaeological excavation of the planned roads should be undertaken. During the subsequent excavation in early 2005 particular attention was paid to the gathering of data that could be used in the discussions, which had risen over the general interpretation of the site and its house plans in particular (Fokkens 2003; Jongste *et al.* 2001). During the 2005 campaign, about 8500 m<sup>2</sup> were added to the c. 4700 m<sup>2</sup> excavated in 2001.1

## Geographical background

The site of Rhenen-Remmerden is located in the centre of the Netherlands, in the south of the province of Utrecht (Fig. 7.1). The landscape in this area, known as the Utrechtse Heuvelrug, was formed during the Saalien glacial period. During this period, the locally existing river sediments were pushed up at the edges of the mass of land-ice. To the south side of these ice-pushed ridges, transport of sediment by the water that melted at the front of the land-ice created a depositional plane (sandur). In this depositional plane, later water transport created gullies that display a characteristic asymmetrical shape due to the periglacial circumstances. The excavations at Remmerden are situated on the sandur and are divided by an erosion gully. To the north lie the ice-pushed ridges of the Utrechtse Heuvelrug and to the south lies the valley of the Rhine.

The sandur of Remmerden is a reasonably flat area (ranging in altitude from 10 m in the south to 20 m in the north) that is very well-suited for occupation and agrarian activities. Apart from the Bronze Age settlement site at Remmerden, this is indicated by the many Iron Age settlement finds from the neighbouring village of Elst and the relics of agricultural field systems of the 'Celtic field' type in the immediate surroundings point to this (Meurkens in prep.). Burial mounds are mainly known from the ice-pushed ridges to the north (Van Heeringen *et al.* 1998; Van Heeringen and Van der Velde 1999). The settlement of Remmerden therefore forms part of a rich archaeological landscape.

## Archaeological data

The Bronze Age settlement site, which forms the topic of



Fig. 7.1 Location of the archaeological site of Rhenen-Remmerden.

Legend: a: Ice-pushed ridges; b: Dry valleys; c: Sandur; d: Rhine valley; e: Present-day river Rhine

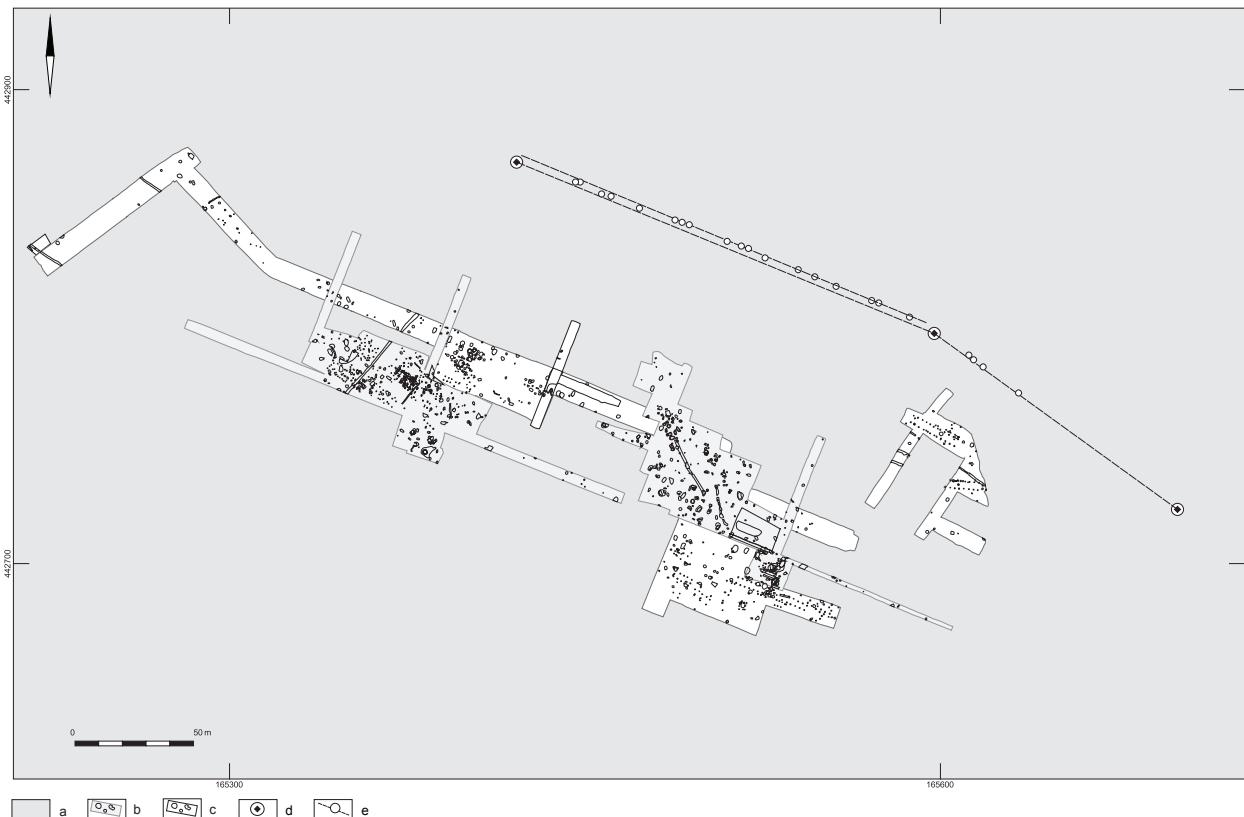


Fig. 7.2 Overview of the excavated area with the areas excavated in 2001 and 2005 indicated.

Legend: a: Not excavated; b: Excavated in 2001; c: Excavated in 2005; d: water pipe trajectory; e: features observed in water pipe trench

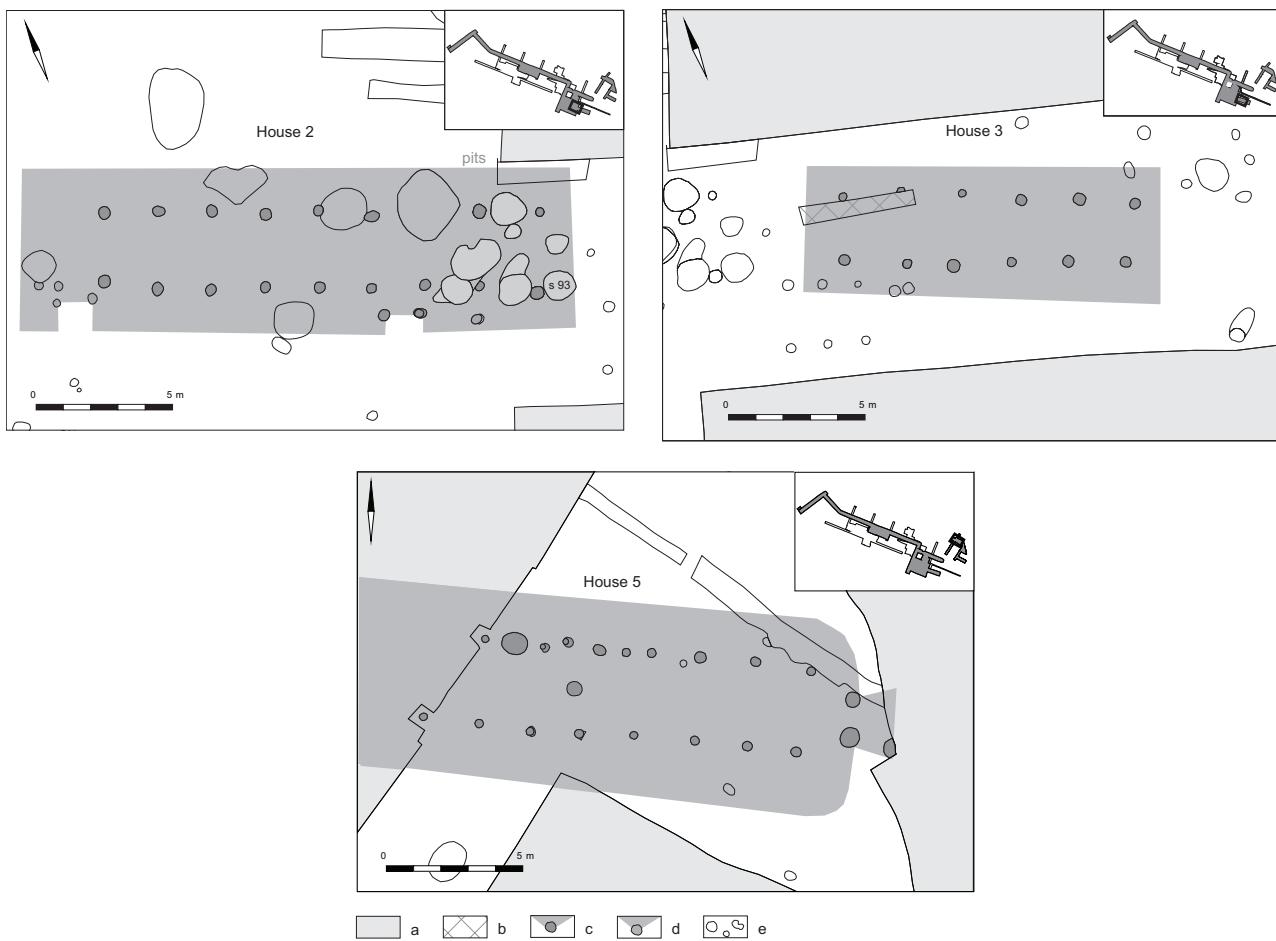


Fig. 7.3 The house plans found during the 2005 excavations (for house plan 4 see fig. 4).

Legend: a: Not excavated; b: Recently disturbed; c: Features associated to houses; d: Features possibly associated to houses; e: Other features

this paper, is situated on the east side of the erosion gully. Although the 1.3 ha excavated in 2001 and 2005 covers only a part of the settlement site, the gathered information provides many interesting insights into the internal structure of the settlement (Fig. 7.2). Three phases of occupation can be identified on this site:

- 1 A first phase, dating to the Early Bronze Age and the Middle Bronze Age-A (c. 2100–1500 cal. BC), for which activity areas can be distinguished, but no clear house plans have been recognized.
- 2 A second phase, dating to the end of the Middle Bronze Age-B (1500–1050 cal. BC) and the beginning of the Late Bronze Age (1050–800 cal. BC), which forms the main occupation phase.
- 3 A third phase, dating to the Early Iron Age (800–500 cal. BC) during which activities mainly appear to have taken place to the north of the excavated area, but within the excavated area some pieces of human cremation were buried.

In this paper we shall first give a short description of the recognised structures, than provide an overview of

the settlement's history and finally highlight some of the special finds from the site.

## Buildings

During the 2001 campaign four house plans were recognized; three of them dating to the Early Bronze Age and the Middle Bronze Age-A. The former have been much criticized since and in the report dealing with the 2005 excavation they have been reinterpreted (cf. below). In 2005 four more house plans dating from the Middle Bronze Age-B have been added to the single specimen excavated in 2001. These house plans will be dealt with first.

All five Middle Bronze Age house plans can be characterised as three-aisled of which only the postholes of the roof-bearing posts were preserved. This three-aisled house type is very well-known from the Dutch Middle Bronze Age. Examples of these can be found in nearby Wijk bij Duurstede 'De Horden' (Hessing 1991) and in the river area just to the south of the Rhine on sites like Zijderveld and Tiel (Knippenberg, this volume; Hielkema

House	Length (m)	Span (m)	Spacing between trusses (m)	Indication of entrances	Orientation
1	15.5 - 20	c. 2.25	c. 1.8	--	NW – SE
2	16.0	2.25 - 2.5	1.5 - 1.75	2 in long side	WNW-ESE
3	10.5	2.0 - 2.5	c. 1.75	--	WNW-ESE
4	21.0	c. 2.75	1.5 - 2.0	1 in long side	WNW-ESE
5	>17.5	c. 2.75	1.5 - 1.75	1 in short side	E-W

Table 7.1 Measures of the house plans

Number	Length	Width	Number of posts
1	2.7	2.2	4
2	3.8	2.6	6
3	3.0	2.1	4
4	2.9	2.0	4
5	2.7	2.2	6
6	3.1	1.6	6

Table 7.2 Dimensions of outbuildings at Rheden-Remmerden

and Hamburg, this volume; Van Hoof and Jongste in prep.) or from the southern sandy soils on sites like Oss (Fokkens 1991; Jansen and Van Hoof 2003). At sites like Oss and Rheden-Remmerden, which are situated on Pleistocene soils, the features of the walls are rarely preserved due to intensive agriculture. In the Holocene river area, however, where many sites have been covered by younger layers of clay, both wall posts and ditches surrounding the houses are very often found.

House 1 was the only three-aisled house plan excavated in 2001 and it is located within an area where several phases of occupation are present. Due to these different phases of digging activities, this house plan is the least well-preserved. Therefore, it is not clear whether only the most evident part of the house plan with a length of 15.5 m should be accepted or whether other postholes should be connected to the house plan which would provide a minimal length of 20 m. There are several indications of repairs to the house. No datable material was found in the postholes, but several Bronze Age sherds came from pits that might be connected to the habitation phase of the house.

House 2 is much clearer in its outline, although in the eastern end of the house a large amount of pits was dug. Therefore it is not entirely clear whether a single posthole in this eastern end should be seen as an indication of a rounded wall at the short end. On two places in the southern wall two additional postholes were placed to the south of the line of roof-bearing posts. These can be interpreted as indications of two entrances in the long side. Again no datable material was retrieved from the postholes. From the pits in the eastern end of the house, however, several large pieces of Bronze Age pots were retrieved.

House 3 was found immediately to the east of house 2

and was only identifiable as a different house plan due to a slight difference in orientation. This house is very short for a normal house from the Dutch Middle Bronze Age. Therefore there are two possible interpretations for this house plan. Either it is a very short house plan indeed or it is an extension phase of house 2. In that case part of the old house could have been reused, as is known from the northern Netherlands (Kooi, this volume). From the postholes of house 3, only one Bronze Age sherd was retrieved.

House 4 shows some interesting constructional details. First there are the probable remains of wall posts at 1.1–1.2 m to the north of the roof-bearing posts at the northern side. Also at the northern side of the house two extra postholes have been found, slightly off-centre of the roof-bearing posts. Just as in house 2, these could be considered as indicators for the location of an entrance. The distance between the two door posts however is quite small: only 1.0 m. In both entrances of house 2 this distance was 1.3 m. In house 5, a door is known measuring 1.4 m. These measurements fit in nicely with the data from Tiel-Medel where six house plans have seven entrances with widths of 1.3 – 1.6 m (Van Hoof and Jongste in prep.). Also the old excavations of Zijderveld and Dodewaard show two clear entrances with widths of 1.3 m (Hulst 1991). In the new excavations at Zijderveld, however, four entrances were found, three of them measuring c. 1.1 m and the last 1.6 m at its narrowest (Knippenberg, this volume). Therefore, it seems that the entrance of house 4 is rather small, but not totally abnormal. However, although it confers to a certain pattern, several irregularities in this house plan remain that are hard to interpret.

In two postholes, sherds were found that could be dated



Fig. 7.4 House 4 with associated pits, the location where the bronze spearhead was found (S 28) and the probable find spot of the human cremation. Legend: a: Not excavated; b: Features associated to houses; c: Features possibly associated to houses; d: Other features

to the end of the Middle Bronze Age-B or the beginning of the Late Bronze Age. Another posthole yielded one of the more spectacular finds from the excavation: a bronze spearhead. This find will be discussed later on in this contribution.

House 5 has not been excavated completely. Interesting is that in the eastern short wall, four postholes were found that follow the pattern of the classical entrance in the short wall, known from the better preserved houses in the river area just to the south of the Rhine (see e.g. Zijderveld: Knippenberg, this volume). Since it was not excavated - the house was found in the northern part of the site that was only to be evaluated -, no datable material was retrieved from this house plan.

Arnoldussen has noted that in general the spacing between trusses of Middle Bronze Age houses is about 2.1 m (Arnoldussen in prep. a; Arnoldussen and Fokkens, this volume). This means that the spacing in the houses of Rhenen-Remmerden (cf. Table 7.1) is well below that number. In Arnoldussen's database almost all houses with a spacing less than 1.8 m can be dated to the Late Bronze Age. Therefore, the spacing of the houses of Rhenen might indicate that they should date late in the Middle Bronze Age or in the Late Bronze Age.

An interesting observation was that pits were found within the houses 1, 2 and 5, which do not appear to belong to the construction proper. However, they respect

the constructional elements of the building, which seems to indicate their contemporaneity. This can be seen clearly in house 4, where one of these pits is situated between the roof-bearing posts and the probable wall posts (Fig. 7.4). Furthermore, they all belong to a specific type of pit that can be described as a pit with straight walls and a flat or only slightly curved bottom. Their fill generally shows a subdivision in three layers. They have diameters of 0.7–1.7 m and remaining depths varying between 25 and 70 cm. Generally these pits are seen as locations for indoor storage of grains and other materials (we might call them cellar-pits; cf. Roymans and Hiddink 1991). In Rhenen-Remmerden in a pit in the eastern end of house 2 (Fig. 7.3: feature S93), the complete bottom of a ceramic vessel and the bottom and lower part of a second pot were found. In the pit centrally placed within house 4 (Fig. 7.4: feature S18) again large parts of pots were found. Perhaps these should be interpreted as the remains of ceramic containers meant for the storage of goods in these pits. The pit within house 4 however, has a slightly aberrant profile that widens near the bottom. Such profiles are generally interpreted as typical of silo-pits. Nevertheless, this still points to a storage function for these pits.

Storage pits within the house are rather common, especially on the higher sandy soils. A good example is house 11 at Breda-Moskes. Here a large storage vessel, containing a smaller pot, was found in a pit within the house,



Fig. 7.5 Location of the pit buildings discovered in 2001 and 2005 in relation to the other recognised structures.  
Legend: a: Not excavated; b: 2005 excavation; c: 2001 excavation; d: Features associated to structures

implying that pit and house are contemporaneous (Koot and Berkvens 2004, 101–103; Berkvens, this volume). Another example of such a large storage vessel within a house is known from an Early Iron Age settlement at Riethoven. Both the pot and the pit, in which it was placed, contained large amounts of cereals (Vanderhoeven 1991). In Rhenen-Remmerden ten samples from nine features were analysed for botanical remains by Prof. dr. C. C. Bakels (Faculty of Archaeology, Leiden University). Only two samples contained cultivated grains (millet); three samples contained arable weeds.

Apart from the houses, several outbuildings could be identified (Table 7.2). During the 2001 excavations one outbuilding consisting of eight postholes was identified to the west of house 1 and two outbuildings consisting of six postholes were found just north of house 2. In 2005 several more outbuildings were added to this list. To the west of house 2, three outbuildings of four posts and one of six posts were identified in a cluster of features. Another six-post outbuilding was found to the north of house 1 at the edge of a large cluster of postholes. A third similar structure was found just south of house 3.

To the north and south of house 2, two interesting examples of outbuildings were found. They consist of a central pit surrounded by a setting of postholes. The post-setting of the structure identified in 2005 measures 2.8 by 2.4 m, whilst the central pit has a depth of 55 cm and a rounded bottom. The central pit of the structure excavated in 2001 has a depth of 1.27 m and a rounded bottom. A similar structure could be identified at the site of Tiel-Medel (Hielkema and Hamburg, this volume). Finally, next to outbuilding 1 a row of four stake-holes was identified that might be the remains of a fence.

### Pits (Fig. 7.5)

As on many other settlement sites a considerable part of the identified features consists of pits. During the fieldwork it was already obvious that a large part of these pits could be classified into three categories, each of which will be discussed in the following.

The first group consists of 35 large, mostly oval pits, which are usually longer than 1.5 m. Lengths of more than 3 meters are no exception in this category. They vary in depth from 0.3–1.1 m below the excavation surface. Their distribution over the settlement area is less clearly patterned as it is for the other two categories. The pits within post-settings discussed above belong to this category. Due to the orientation of their long axis, which quite consistently follows the micro relief, they were initially interpreted as natural phenomena (Jongste 2001). However, the fact that the distribution of these pits is confined to those areas that show clear anthropogenic features, the fact that some of them do contain ceramics and that two of these are found within post-settings does seem to underscore the fact that they should be interpreted as anthropogenic features. Their function within the settlement is not very clear. They do

not seem to be as directly related to house-based activities, as is the second category of pits.

This second group consist of 23 medium-sized pits with diameters varying from 0.7–1.7 m. Their depths vary from 25–70 cm below the excavation surface. Their walls are straight and their bottoms flat or slightly concave. The filling of the pits can be divided in different layers, normally in three. The bottom layer has a darker colour that can sometimes clearly be related to the charcoal and find material that is incorporated in this layer. The middle layer mostly is quite clean, whilst the upper layer can have a darker colour again. This pattern can be explained as consisting of a lowermost primary fill containing the rubbish coming from the kitchen or other activity areas that was used to fill part of the existing pit. The material contained in this layer therefore need not have any relation with the activities for which the pit was initially dug. After getting rid of some of the garbage lying around the house, the pit was further filled with clean soil. This filling up could go either to the original surface or it could leave a small depression that was subsequently filled naturally with sediment containing all kinds of small settlement debris. Many of the pits in this category are found near or within houses. A relation with house-based activities therefore seems to be logical. As discussed previously, some pits within houses might be interpreted as storage facilities. The same is usually assumed for other pits of this type (cf. Roymans and Hiddink 1991). However, the storage of bulk cereal doesn't seem to work very well in loose and therefore oxygen-rich soils with large variations in the groundwater table (Reynolds 1974). These are exactly the soil conditions at Remmerden. Therefore storage of cereals etc. might have taken place within ceramic or wooden containers or above-ground within the houses and outbuildings.

The third group consists of 16 small pits with lengths of 0.4–1.0 m. Their depths range from 10–30 cm below the excavation surface. Their bottoms are mostly rounded. Only rarely can different layers be distinguished. Both find-rich and extremely find-poor pits belong to this group. An interesting observation is that these pits can only be found in groups. Therefore, they seem to be connected to activities that were performed in distinct areas within the settlement. Some might also be seen as pits specifically dug to dump waste material in, i.e. refuse pits proper.

### Concentrations of pits

An interesting feature of the site at Remmerden is that three rectangular to ovoid clusters of pits and postholes were found (Fig. 7.6). One of these (pit cluster 1) has been interpreted as a possible house plan (Jongste 2001, 36–39). Reasons for this interpretation were the rectangular shape of pit cluster 1 and its dimensions of 20.1 x 9.7 m. Pit cluster 3 in particular, excavated in 2005, shows the same characteristics: a rectangular shape and dimensions of 13.0 x 5.4 m. Pit cluster 2 had a more ovoid shape and dimensions of 11.0 x 4.6 m and therefore fits this



Fig. 7.6 Distribution of pits at Rhenen-Remmerden.

Legend: a: Medium sized pits; b: Large pits; c: Small pits; d: Pit cluster; e: 2001 excavation; f: 2005 excavation

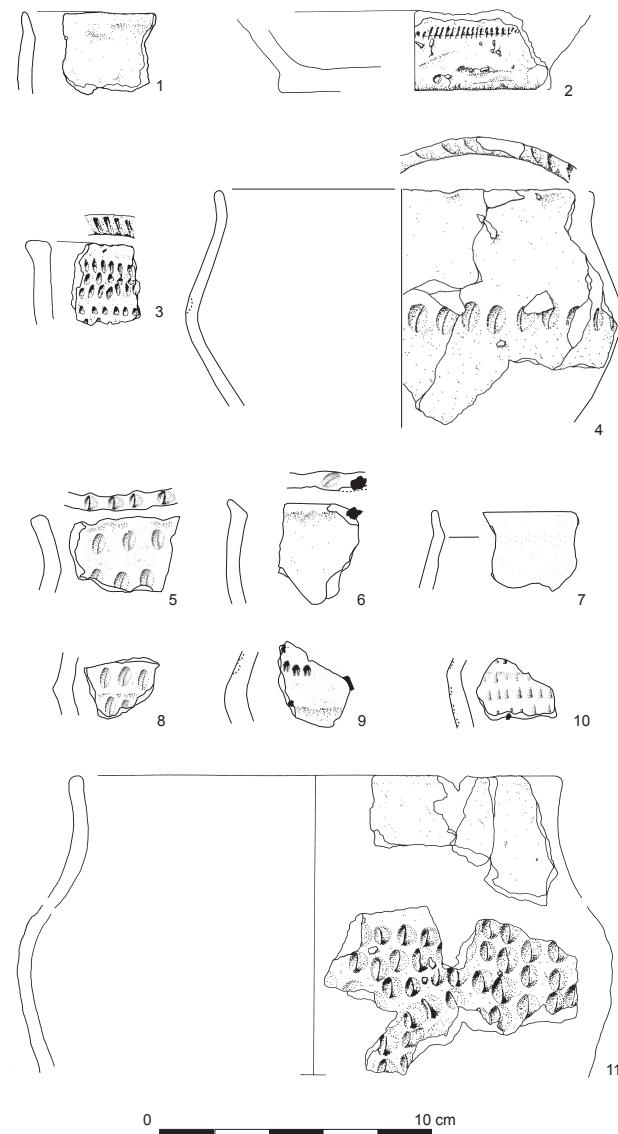


Fig. 7.7 Selection of ceramics from different contexts at Rhenen-Remmerden.

Legend: 1: Feature 11.18, end Middle Bronze Age-B; 2: Barbed-Wire beaker (Early Bronze Age) sherd from the trench to the north of the excavations; 3: Late Bronze Age sherd from the trench to the north of the excavations; 4-10: Feature 11.18, end Middle Bronze Age-B; 11: Late Bronze Age sherds from feature 9.5

group somewhat less. Although the overall shape and dimensions might be comparable to those of house plans, the constructional details are very different. Within the clusters there are large differences in types and dimensions of features. They clearly consist of both postholes and pits of varying depth. But whereas in the three-aisled houses pits are clearly situated within the constructional frame of the house (one of the side aisles?), in the pit clusters no clear walls, roof-bearing posts or other constructional elements can be identified.

Therefore we suggest an alternative explanation: the pit clusters ought to be seen as special activity areas

rather than houses proper. The situation can be compared to that found at Geldrop (Wesdorp 1997, 18–19), which has clusters of pits as well, accompanied by large, clearly identifiable houses.

The dating of the pit clusters is variable. Some features of cluster 1 can be clearly dated to the Early Bronze Age. One of the postholes in this cluster contained 1.1 kg of ceramics, partly decorated with barbed-wire motifs and from seven other postholes comparable sherds were retrieved. Another posthole contained a complete grinding stone of 12.5 kg. In cluster 2, in a small pit a large amount of decorated ceramics was found that can be dated in the

beginning of the Late Bronze Age or the end of the Middle Bronze Age-B. The dating of cluster 3 is less clear: five features have yielded Middle Bronze Age material, one feature seems more likely to date in the Late Bronze Age. Due to the chronology of the site, which will be discussed below, we might assume a dating of cluster 3 that is comparable to that of cluster 2. The conclusion of this overview is that at least cluster 2 (and probably also cluster 3) is contemporaneous with at least some of the large three-aisled house plans identified on the site.

### Dating of the site

The main source used for dating the different structures is the ceramic material (Fig. 7.7). The ceramics from the 2001 campaign were studied by Bloo (Bloo *et al.* 2001), whilst the material from the 2005 campaign was studied by Arnoldussen (Arnoldussen in prep. b). A large part of the 2001 material was dated to the Early Bronze Age. It was therefore an intriguing observation that during the 2005 campaign only a few sherds could be dated to that period. On close observation, however, even in the 2001 campaign the actual find spots of Early Bronze Age material were almost exclusively confined to a small number of features; all from pit cluster 1. Outside this concentration only two features yielded material datable to the Early Bronze Age. A similar situation exists for the Middle Bronze Age-A. Apart from an almost complete pot, almost no material could be securely dated to this period (Bloo *et al.* 2001; Arnoldussen in prep. b). Therefore we conclude that features belonging to this phase of occupation are very limited in number and are mainly restricted to a small area within the excavated surface.

Dating evidence for the Middle Bronze Age-B is much more limited, since ceramics from this period have a wide dating range.

An interesting feature of the find assemblage from the 2005 campaign is, that both the undecorated, coarse 'Middle Bronze Age' ware and highly decorated 'Late Bronze Age' ware are of the same fabric. This refers for instance to the coarseness of the temper. This led Arnoldussen to the conclusion that the entire assemblage ought to be dated to the transition from the Middle Bronze Age to the Late Bronze Age. This suggestion was corroborated by a 14C-dating of 1270–1040 cal. BC.<sup>2</sup> This date was obtained from large pieces of charcoal coming from a pit yielding 2.26 kg of ceramics placed centrally in house 4 (Fig. 7.4: feature S18). The fact that comparable decorated sherds were found both in this pit and in postholes from the house, is an indication for contemporaneity of pit and house. At least part of the large three-aisled houses should therefore be dated to the end of the Middle Bronze Age-B.

## An interpretation of the Bronze Age occupation of Rhenen – Remmerden

### The Early and the Middle Bronze Age-A

The first clear signs of occupation of the sandur at Remmerden date from the Early Bronze Age (2000–1800 BC). Apart from a small amount of finds from different features, in this period a rectangular pit cluster was dug in which a large amount of ceramics and a complete quern stone were left, each in one posthole. However, no clear house structures were found in this period. Therefore we do not know whether the activities carried out in Remmerden should be interpreted as a farmyard.

The same interpretation problems are associated with the data of the Middle Bronze Age-A (1800–1500 BC), in which in a large cluster of postholes in the west of the excavated area, an almost complete decorated pot was left in a posthole, but no house plans were identifiable. In the 2001 report, two possible phases of one house were identified within this concentration of postholes (Jongste 2001, 27 ff.). However these reconstructions have been criticized (e.g. Fokkens 2003 and above). The main constructional element on which these reconstructions are based, is a row of several postholes placed on short distances of each other. The different constructional elements, however, show absolutely no consistency in form, size or depth. Neither is their spacing regular or their distribution in the proposed plan. Therefore we think that we will have to abandon this reconstruction.

How should we explain the lack of house plans on this 'settlement site' during the Early Bronze Age and the Middle Bronze Age-A? A first solution would be to look at the way the Bronze Age cultural landscape was built up. If we look at large-scaled excavated Bronze Age settlement sites from the sandy soils of the southern Netherlands, we see a very extensive use of the landscape (Jansen and Van Hoof 2003; Koot and Berkvens 2004). House plans only form one element in a large scatter of features. Therefore very often isolated clusters of pits or other features dating to the Bronze Age can be found isolated in excavated areas. This would mean that these clusters of features should be interpreted as activity areas, which we could call settlement areas, although they might be situated hundreds of meters from the nearest house site. Therefore the house plans from this period could be situated outside the excavated area, where during previous building activities features from the Neolithic and the Early Bronze Age were seen.

Even for very large-scale excavations as at Oss this seems to be the reason for the lack of house plans dating from the Late Neolithic and the Early Bronze Age. In Oss there seems to be a gradual 'colonisation' of the sandy plateau during the Bronze Age. In the Late Neolithic and the first half of the Bronze Age only pits were left in the excavated areas (Jansen and Fokkens 2002, 318 ff.; Fokkens in prep.). Another part of the problem is that the visibility of houses from this period is apparently very low

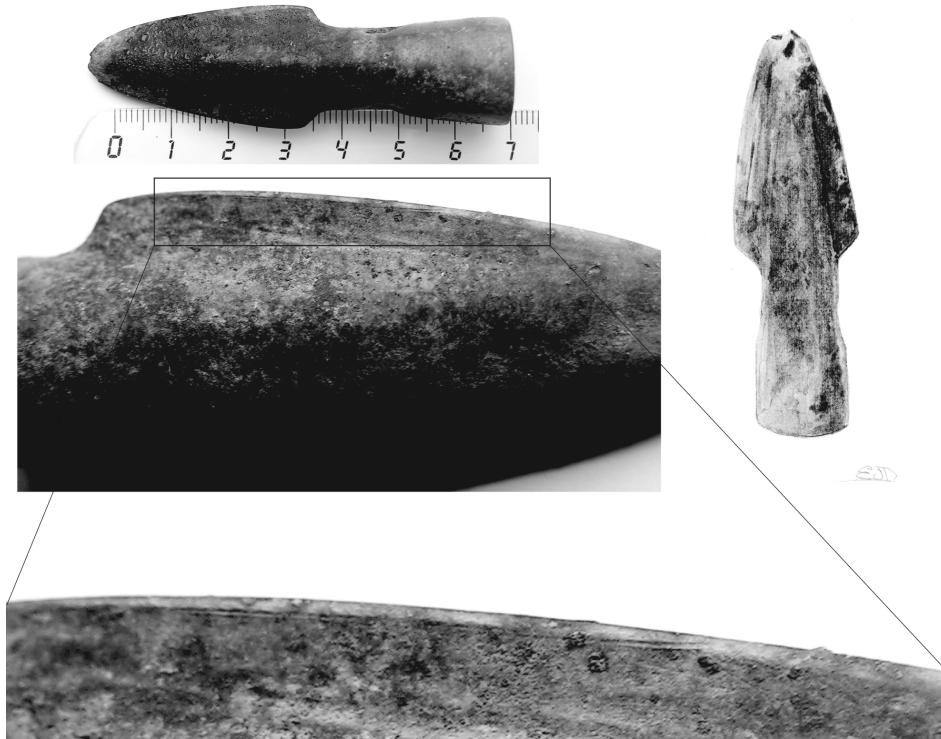


Fig. 7.8 The bronze pegged spearhead from Rhenen-Remmerden; (drawing to the right by Eric van Driel, Faculty of Archaeology, Leiden University)

in all of the Netherlands (Fokkens 2003; Arnoldussen and Fontijn 2006). We should therefore not be surprised that houses from this period are lacking, whereas pits are known in abundance. That confers to the general picture.

#### **Settlements of the Middle Bronze Age-B and the Late Bronze Age (1500–800 BC)**

During the Middle Bronze Age-B the way the site was used, seems to have changed considerably. In this period regular three-aisled houses were built, five of which we have found. They were surrounded by outbuildings and groups of pits. The houses show traces of repair, but rarely seem to have been used for several generations, as they show no extremely dense posthole clutters. Yet on the house site of houses 2 and 3, we can clearly see a second building phase. Judging by their positioning and orientation the second phases are thought to be direct successors. A similar situation might have existed on the house site of the houses 4 and 5, although here the distance between the houses and the difference in orientation is much larger.

Based on the characteristics of the ceramics and the only 14C-date available, it is evident that at least part of the houses, outbuildings and pits in excavated houses at Rhenen-Remmerden, should be dated to the twelfth century BC. We would argue that this settlement functioned a century or more (Van Hoof and Meurkens 2007). We are tempted to see the house sites as representing at least two different families, which could mean that the use-

life of the settlement could be three generations. This, however, cannot be proven on basis of the data currently available.

The youngest activities carried out on the site date to the Early Iron Age. Just to the north of the excavated area several more features dating to the Early Iron Age were found in a trench dug for a drainage system. These features seem to indicate the nearby presence of an Iron Age settlement site (Van Hoof and Meurkens 2007). The settlement location therefore seems to be shifting to the north. In the excavated area a few fragments of cremated bone were found, but it is unclear whether they should be interpreted as human remains mixed with settlement waste or as a grave in the vicinity of the settlement. This is a question that can only be answered on the basis of future research.

#### **Rituals, structured deposition or garbage?**

During the excavations of 2001 and 2005 a few special finds were encountered within the settlement area. The majority of these originated from rich deposits in pits and postholes. As an example we might point to an already mentioned, almost complete pot from the Middle Bronze Age-A and a complete quern stone from the Early Bronze Age. In the preceding paragraphs it was argued that the large fragments of pots dating to the Middle Bronze Age-B came from storage pits within the houses. Therefore these remains seem to be the reliques of the containers that were used to

store cereals, honey or other goods within the house.

Another special find consisted of a bronze spearhead (Fig. 7.8), found almost horizontally in a posthole of house 4 (Fig. 7.4: feature S28). Its horizontal position makes it impossible that the shaft of the spear was still attached to the spearhead. This horizontal position centrally in the top of the remaining feature makes it likely that the spearhead only was deposited here after the wooden post had been removed. David Fontijn (Faculty of Archaeology, Leiden University), who studied the spearhead, states that it cannot be dated more precisely than Middle or Late Bronze Age. The length of only 7.2 cm makes the spearhead stands out amongst the somewhat 140 spearheads known from the southern Netherlands and northern Belgium (Fontijn 2003, appendix 6.3). Amongst these, only three spearheads have lengths of about 8 cm or less. Only from the German Rhineland an even smaller spearhead is known. The presence of bronze objects on Bronze Age settlements is extremely rare in the Netherlands. The last ten years bronzes were found at Tiel, Eigenblok, De Bogen and Cuijk, but they generally consist of tools like sickles and an axe (Jongste, this volume; Meijlink, this volume). The presence of weaponry on such a settlement site therefore is an entirely unexpected surprise (but see also Deiters, this volume). The presence of a spearhead in a house floor on the British Isles has been explained as a ritual killing of the house (Nowakowski 2001, 139). We might use a similar argumentation for Dutch sites, but the evidence is yet too scanty to support such interpretations.

## Final remarks

The site at Rhenen-Remmerden shows two main phases of use, rather distant from each other in time. The first phase of use is represented by a number of pit clusters with pottery dating to the Early Bronze Age and the Middle Bronze Age-A, probably between 2000 and 1600 BC. The second phase of occupation dates to the end of the Middle Bronze Age-B, probably to the twelfth century BC. In that period five large three-aisled houses were constructed, accompanied by outbuildings and large numbers of pits.

The evidence on settlement layout fits in with a picture that is emerging during the last decade, as more and more large-scale settlement excavations provide data that can be compared to the older 'type-sites'. Interesting is the evidence of 'storage pits' inside houses and the way they are filled up after use. Insight into the treatment of 'refuse' on settlement sites has been augmented the last few years (e.g. Hill 1995). It is in this treatment of 'refuse' that we can see the mixture of rituals and every day life: the remains of ceramic storage containers in 'storage pits' within the houses indicate a mundane treatment of refuse, whilst the bronze spearhead may hint at rituals carried out in the abandoned settlement.

## Acknowledgements

We would like to thank all those involved in the excavation campaign of 2005: our small team of Archol-employees, students and volunteers of the Werkgroep Archeologie Rhenen; Peter Jongste, who directed both the campaigns of 2001 and 2005; the Community of Rhenen, who provided the funding; Stijn Arnoldussen, who studied the ceramics; David Fontijn, who studied the bronze spearhead; Corrie Bakels, who studied the plant remains; Sara Shek and Walter Laan, who made the illustrations and Raf Timmermans, who made the drawings of the ceramics.

## Notes

- 1 For a more detailed description of the structures, find material, etc. readers are referred to Van Hoof and Meurkens 2007.
- 2 Dating Poz-14567 giving  $2950 \pm 30$  BP. Calibration with a probability of  $2\sigma$  in OxCal gives a result of 1270–1040 BC, with a probability of  $1\sigma$  the result is 1260–1230 BC and 1220–1120 BC.

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# 8 Living at Eigenblok. A Bronze Age settlement in the Dutch river area

*Peter Jongste*

## Introduction

As a part of the archaeological works accompanying the construction of the Betuweroute freight railway, six plots were excavated near the village of Rumpt. Initially, only two of these – sites 5 (Eigenblok-West) and 6 (Eigenblok-Oost) – had been mapped during a phase of prospective coring (Fig. 8.1). Both sites were situated on a meander belt of the same name (Berendsen and Stouthamer 2001, 199, no. 43: Eigen Blok). The Eigenblok-Oost site was suspected to be a Bronze Age house site, possibly only occupied during several generations and to some extent eroded by later fluvial activity and by a deep and wide modern ditch. The Eigenblok-West site was during the coring campaign interpreted as an undisturbed, single-phased house site covered by heavy clay. The cultural layer on the former site was black; the pattern of corings containing archaeological indicators showed a pear shaped distribution of 40 by 30 meters. As preservation of both sites was impossible they were selected for further research.

First, both sites were assessed by means of small test pits (Jongste 1996; Bulten 1997). The top part of the cultural layer was carefully dug away by hand, collecting the settlement debris in a square meter grid in 5 cm thick layers. Also, samples taken from the cultural layer were sieved to collect the smaller sized finds. Both sites yielded ample sherds, flint and rock, burnt and unburnt bone, charcoal and burned clay. Although only stakeholes and small sized postholes were found, at both sites farmsteads were expected to be present. At Eigenblok-West not only Middle Bronze Age pottery was found, but also Late Neolithic sherds were recovered from the lower parts of the cultural layer.

In this paper the results of the more extensive excavation

undertaken at site 5 (Eigenblok-West) and site 6 (Eigenblok-Oost) will be presented first, next the results of the four other house sites (sites 1–4) will be dealt with.

## Eigenblok-West (site 5)

The excavation of site 5 started in the summer of 1997 and took six months to complete (Jongste and Van Wijngaarden 2002). The first two features discovered turned out to be the entrance posts of a Bronze Age house. After removal of the vegetation horizon, which through its darker colour obscured the features, a single-phased and undisturbed house site emerged (Fig. 8.2). All posts of this house were preserved as wooden stumps. On these, very clear axe marks – with burrs showing that the edge of the axe used was chipped – could be observed.

## House and farmyard

The house plan discovered at site 5 accorded well with other Middle Bronze Age house plans from the central river area (Zijderveld, Dodewaard and Wijk bij Duurstede: Theunissen 1999; Fokkens 2001). All these sites yielded plans of three-aisled longhouses, some flanked by wall ditches, showing two rows of uprights at regular intervals supporting the roof and rows of single or paired stakes of the wattle of the walls. The house plan at site 5 can be compared well to this more general ‘river area type’ group, but shows most similarities to those found at Wijk bij Duurstede (Hessing 1991, 45). The roof-bearing structure of the boat shaped plan consisted of 11 pairs of uprights placed longitudinally at 2 m intervals.

Two entrances, one in the southern short side and



Fig. 8.1 Location of the Eigenblok sites with the excavation trenches

one halfway along the south-western long side, were recognized. The latter led to a burnt patch between the rows of uprights, wherein scatters of burnt bone, burnt clay and charcoal were preserved in the top of the cultural layer. This is thought to have been the relicts of a surface hearth. If the interpretation as a hearth (area) is correct, this part of the building can be interpreted as the living quarters. Directly to the north of this area a ridgepole was placed. This might have been part of a dividing wall that set apart the northern part of the house from the cooking area. The southern entrance could have functioned as an entrance into a byre section, although clear indications of stalls were absent.

The house plan appears to be 'clean', that is to say, constructed on a not previously occupied location and showing no signs of being overbuilt by younger structures. Furthermore, the layout of the house plan is very regular and on the whole does not seem to have been modified or rebuilt. Still, a number of postholes seem to be duplicated and the north-eastern wall is not built in a straight line, but shows an extension in the central part of the house where two concentrations of charcoal and burned clay were found. These concentrations possibly belonged to the hearth area as well. This irregularity in the eastern wall could also be interpreted as a renewed phase of wall construction, suggesting the possibility of at least two house construction phases.

Finds embedded in the topsoil of the cultural layer were

collected systematically by hand in a square meter grid in layers of 10 cm thickness, and 20 litre samples of each square meter were sieved. This allowed the compilation of a distribution map of the various finds. There appeared to be a strong correlation between the location of the house and outbuildings and the high concentration of finds, confirming the assumption that the site was not intensively disturbed. The distribution analysis shows that most finds originated from the northern part of the house, mainly concentrated in the hearth area and in the south-western entrance. A second concentration, just outside of the south-eastern entrance, could not be correlated to any structure. This is considered to be a location where refuse was dumped.

Interestingly, immediately west of the house a circular ditch was found which is believed to be a relict of a ring ditch barrow. A charcoal sample dates the barrow to between 2287 and 1775 cal. BC (at  $2\sigma$ ), which means the Late Neolithic or Early Bronze Age. Although no proper barrow body was recovered, it is assumed that the barrow was visible or 'known' and was incorporated into the Middle Bronze Age farmyard on purpose.

Apart from the house plan and the barrow, three granaries, a shed-like structure and pits were recognized. Several fences of the 'double stake-type' demarcated the farmyard and kept out the cattle that grazed in the areas outside. The house, outbuildings and pits were all situated in the north-eastern corner of a rectangular farmyard of at least 65 m wide and 68 m long, leaving lots of vacant

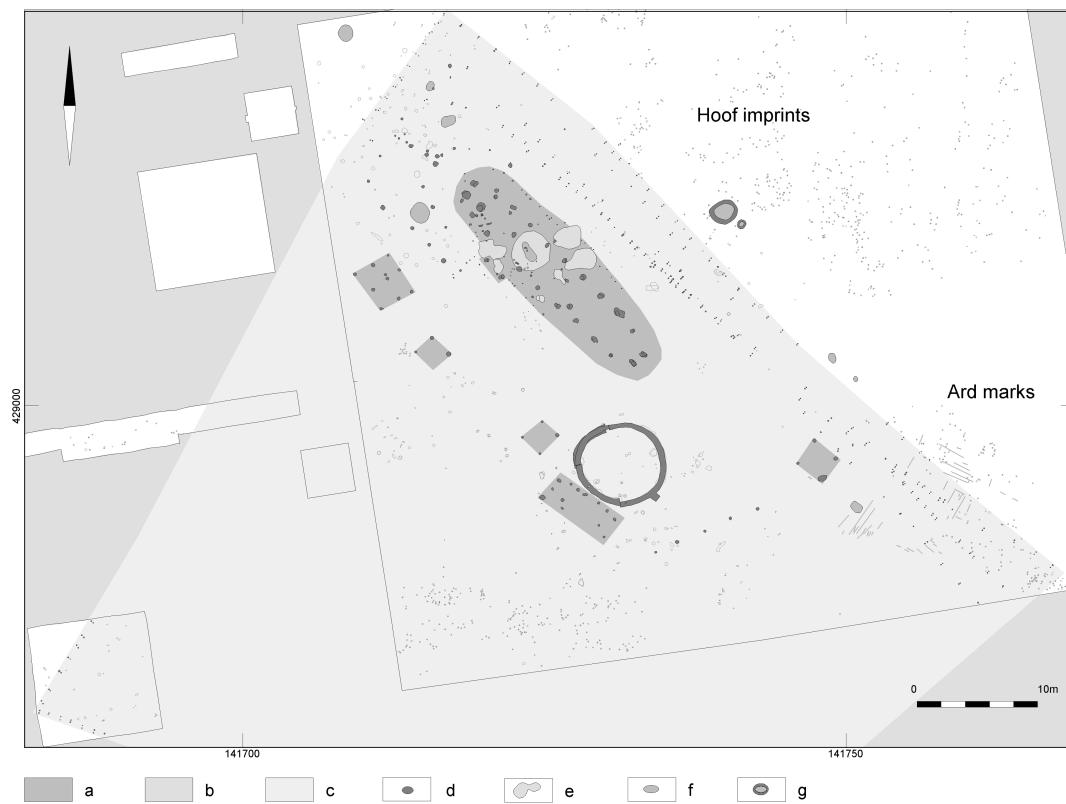


Fig. 8.2 Eigenblok-West: overview of features and structures.

Legend: a: Structures; b: Not excavated; c: Lay-out of the farmyard; d: Features belonging to the structures; e: Concentrations of burned bone, clay and charcoal as part of the hearth; f: Pits; g: Well

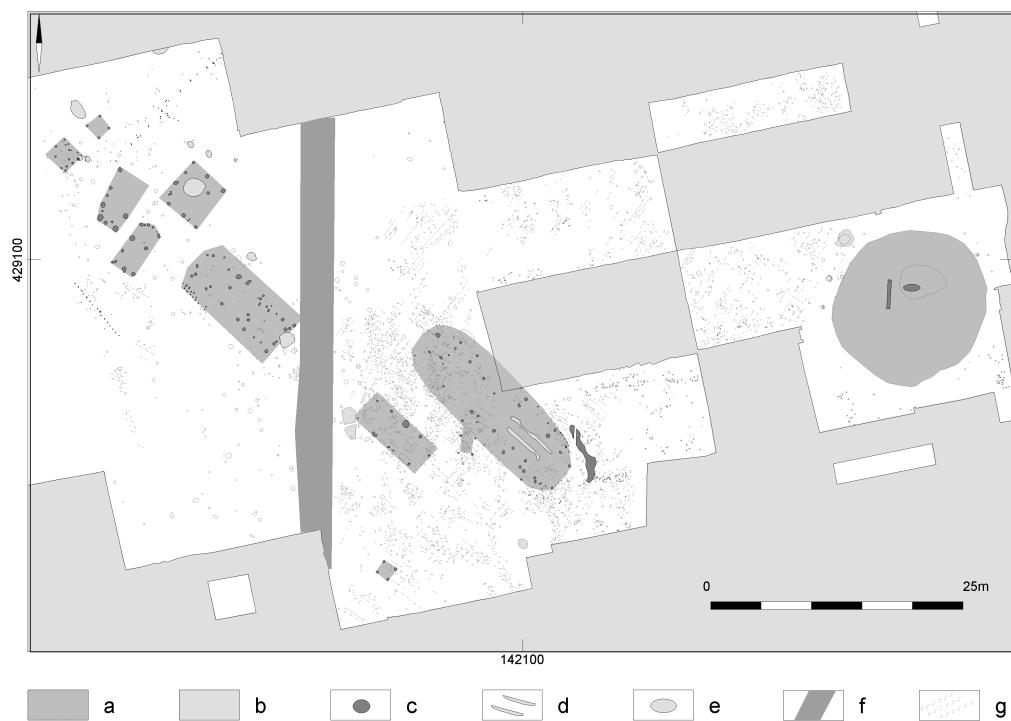


Fig. 8.3 Eigenblok-Oost: overview of features and structures.

Legend: a: Structures; b: Not excavated; c: Features belonging to the structures; d: Cart wheel marks; e: Pits; f: Modern ditch; g: Ard marks

Sample	Conventional date	Calibrated date $2\sigma$ cal. BC	Agreement index $A=114.6\%$ ( $A^c=60\%$ )	Calculated date $2\sigma$ cal. BC
House	3165±15	1495–1410	107.2%	1460–1405
House	3155±15	1495–1400	107.2%	1455–1400
House	3120±75	1540–1190	125.5%	1460–1280
Palissade	3105±20	1430–1310	100.8%	1430–1310
Single post	3080±20	1420–1290	101.4%	1420–1300
Granary	3070±20	1410–1270	103.0%	1410–1300
Outbuilding	3060±20	1400–1260	105.3%	1410–1290
Outbuilding	3025±25	1390–1200	94.7%	1400–1260
Single post	3040±40	1420–1130	109.5%	1420–1270
Fence	3030±20	1390–1210	94.6%	1390–1260

Table 8.1 Sequence calculation of dates from site 5, using OxCal v3.10 (Bronk Ramsey 2005)

space. Numerous hoof imprints encircling a deep, unlined pit, possibly a watering hole, were found just northeast of the fences. Next to it a shallow unlined pit may have been used to collect drinking water for the cattle. A cattle-louse was found inside. Close to the north-eastern corner of the farmyard, rows of hoof imprints and a couple of imprints of bare human feet suggest the location of a former muddy pathway. Ard marks were found in the southeast of the excavated area, some outside, others within the area demarcated by the fence, suggesting that arable fields were situated here before or after the occupation.

### Dating

A total of ten post-stumps from the house, outbuildings, a fence post and isolated posts were dated using the conventional radiocarbon method or AMS dated (Table 8.1). Additional samples of charcoal, grain and organic residues were dated as well. All samples date to the second part of the Middle Bronze Age (1500–1100 BC). The house was possibly built first, followed by the outbuildings, the granary and finally the fence demarcating the farmyard. The calibrated result of the two most precise measurements (15 BP 1-sigma measurement error) yields a 2-sigma range of 1495–1400 cal. BC. When these dates are incorporated in a sequence calculation using OxCal v3.10 this interval can be narrowed down even further. As the overall agreement index (114.6%) is well above 60% this sequence calculation can be considered to be reliable (Bronk Ramsey 2005). The construction date of the house now falls between 1460 and 1400 cal. BC.

Using all available dates in a sequence calculation, the site was occupied at least between 1405 and 1390 cal. BC (maximum occupation period: 1460–1260 cal. BC; both intervals with  $2\sigma$ ), stretching a period of occupation of 15–200 years.

The maximum life span of 200 years for site 5 may be too long. As all buildings were built from alder trees, it is unlikely that all structures will have lasted this long. Alder is very tender and may have lasted only 10–15 years under

normal conditions (IJzereef 1981, 178; IJzereef and Van Regteren Altena 1991, 75). One could increase this life span, if the wood was protected by daub and the roofing of the structure was maintained. Given the fact that the house itself does not show clear indications of (repeated) repairs or rebuilding activities, I am inclined to think of only 25 years of occupation at this site (cf. Roymans and Fokkens 1991, 11). The limited number of granaries and outbuildings do not show rebuilding – as is the case, for instance, at Zijderveld (Knippenberg and Jongste 2005; Knippenberg, this volume) – and is an indication that we should not overestimate the life span of the house site either.

### Eigenblok-Oost (site 6)

The site labelled Eigenblok-Oost (site 6), excavated during the first half of 1998, turned out to be less well preserved than site 5 (Fig. 8.3). The site had suffered from extensive ploughing, possibly occurring during the Late Bronze Age or Iron Age. Furthermore, during the Middle Bronze Age the site had been occupied for several centuries. Only one house plan could be reconstructed with certainty. It was of the so-called Oss 1A (Fokkens 2001, 254) or half-portal type (Huijts 1992), at least 18 m long and with a possible entrance in the southern short end. Part of a curved ditch was found along the eastern wall, of which nothing, but a single row of stakeholes remained. Traces of wheel tracks (1.2 m apart) were found in the southern part of the building.

A concentration of finds ten meters to the (north)west of this house, might indicate the presence of another structure. From the preserved features, the plan of an 11 m by 6 m three-aisled structure, possibly another house, was reconstructed. Maybe this house extended further south, but a modern ditch makes a reliable reconstruction impossible. The wall of this structure was formed by a double row of stakes. Three posts seem to be placed on the central axis of the house. Its layout, to some extent, can be compared to the long houses from Zijderveld and

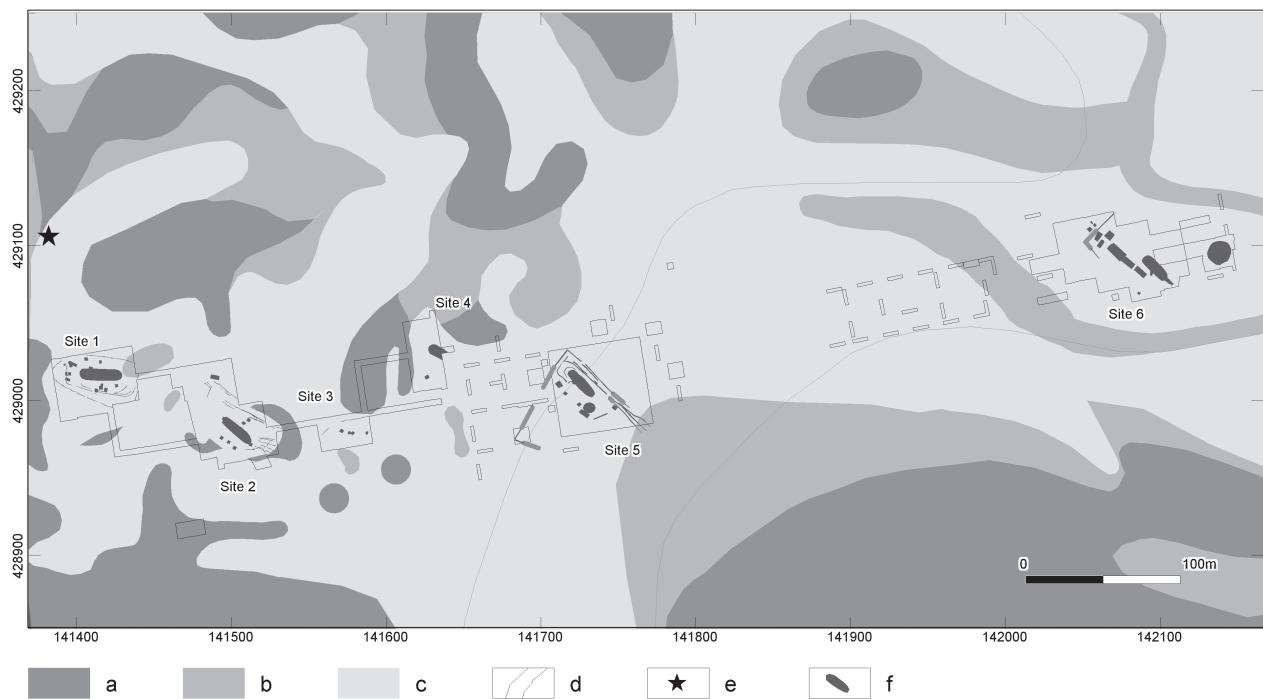


Fig. 8.4 Overview of Eigenblok sites situated in the Middle Bronze Age landscape.

Legend: a: Peat and heavy clay; b: Heavy clay; c: Sandy clay and silt; d: Meander belt; e: Location of a house site; f: Structures of the Eigenblok sites

Dodewaard (Theunissen 1999; Fokkens 2001, 253–254; Knippenberg and Jongste 2005).

Site 6 does not show a comparable clean image of a single-phase farmstead, as site 5. Traces of fencing to the north of the second house seem to suggest a rectangular shaped farmyard. There is scanty evidence for granaries and outbuildings and these cannot be attributed with any certainty to either of the houses. As at site 5, a Late Neolithic barrow was found, this time at a distance of 50 m to the east of the houses.

Between sites 5 and 6, test-trenches yielded ard marks that indicate that this zone was used as arable land. Hoof imprints accompanied these. It could not be established whether these imprints belonged to animals that pulled the plough or to animals grazing on pasture or fallow land.

### Dating

A stump of timber used in the half-portal type house was dated to the beginning of the 14th century ( $2\sigma$  1400–1260 cal. BC). This is shortly after the house was built at site 5. The location of site 6 was, however, already occupied earlier during the Middle Bronze Age. Two post-stumps that could not be assigned to any structure, and a charcoal sample from a pit were dated to the second half of the 16th century BC ( $2\sigma$  1560–1430 cal. BC). A post-stump of one of the outbuildings produced the youngest date: 1310–980 BC ( $2\sigma$ ), indicating an occupation period of at least 120 years (but spanning a maximum of 580 years).

### Eigenblok (sites 1–4)

During the excavations at sites 5 and 6, a prospective coring campaign executed to compile a detailed palaeogeographical map, yielded four further house sites west of site 5 that were lying in the course of the future railway track. All sites were situated in what was first thought to be the former floodplain, but turned out to be located on top of crevasse splay deposits that formed small, dry and elevated ridges in the surrounding marshlands (Fig. 8.4). These four sites were also selected for more extensive excavation. Three of these yielded longhouses, outbuildings, fences and pits that could all be dated to the Middle Bronze Age. At site 3, only granaries and some pits and fences were found, as the house site itself was located south of the excavated area during the coring campaign. All sites were used intensively over a long period of time as all sites were characterised by high feature densities. Still, on sites 1, 2 and 4 only a single ground plan of a longhouse could be reconstructed, indicating that each location was occupied only once during the Middle Bronze Age. Despite this observation, the locations may have been used prior to and later than this occupation for storage, as the ground plans of granaries and outbuildings overlap those of the houses.

### Site 1

The house plan of site 1 is of the same type as the houses from Zijderveld and Dodewaard (Knippenberg and Jongste

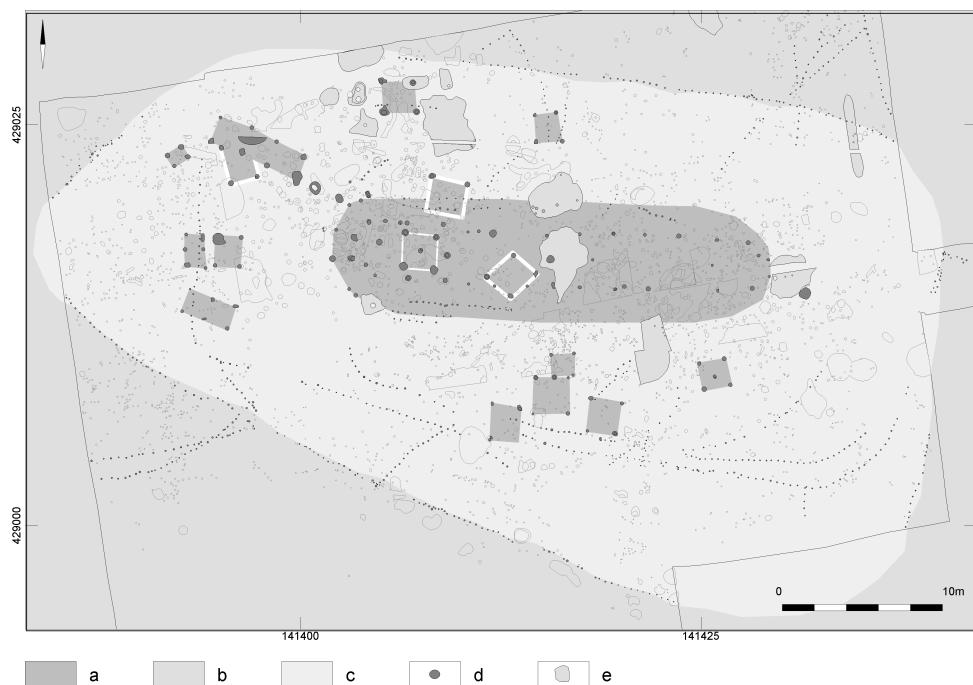


Fig. 8.5 Eigenblok site 1: overview of features and structures.

Legend: a: Structures; b: Not excavated; c: Lay-out of the farmyard; d: Features belonging to the structures; e: Pits

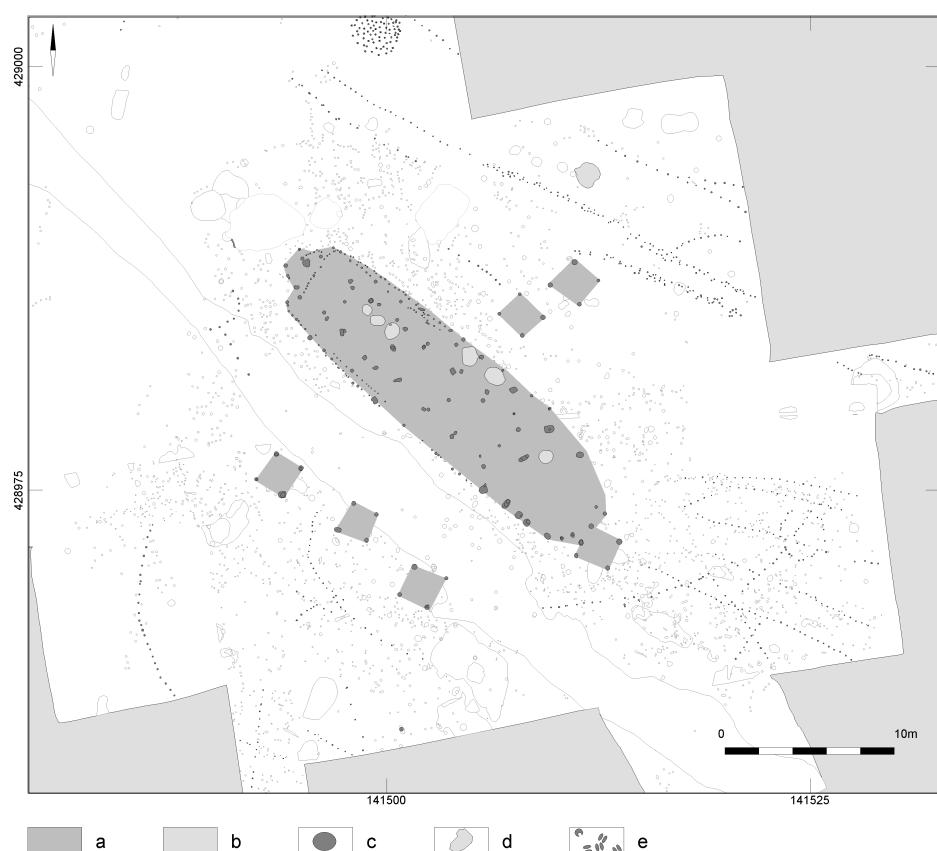


Fig. 8.6 Eigenblok site 2: overview of features and structures.

Legend: a: Structures; b: Not excavated; c: Features belonging to the structures; d: Pits;  
e: Hoof imprints

Site no.	Maximum period	Minimum period
	2σ cal. BC	2σ cal. BC
Site 1	1500–1130	1430–1405
Site 2	1495–1260	1400–1395
Site 4	1520–1425	1520–1425
Site 5	1540–1130	1410–1390
Site 6	1690–1130	1440–1400

Table 8.2 Occupation period of all sites based on the dated samples

Context	Minimum cal. BC	Duration (yrs)	Maximum cal. BC	Duration (yrs)
Landscape: crevasses	1680–1400	280	1920–1190	770
Archaeology: all dates	1440–1390	50	1690–1130	560
Sequence calculation	1425–1390	35	1500–1295	205

Table 8.3 Occupation period (comparison between landscape, archaeological dates and sequence calculation of all dates)

2005), albeit much longer (27 by 6 m) and orientated west-east. The 17 roof-bearing posts are set apart at regular intervals (1.8 m apart, spanning 3 m). On the central axis five additional uprights were placed. A single row of stakes indicates a wattle and daub wall. Entrances were located in both short ends, based on the protruding posts at either end. Centrally within the house, a burnt area may be interpreted as the location of the hearth. As most material came from this part of the house, a living area may be located here.

Most of the outbuildings, predominantly granaries, were found south of the house; some to the west and north of it. A cluster of pits was also present to the north of the house. Fences made from single stakes placed in rows demarcated the farmyard. These fences suggest a rectangular shaped farmyard with rounded corners. The fences seem to have been built in at least two phases, possibly as a consequence of a rise of the groundwater table during occupation. The house itself is not dated, but the combined dates for timbers from two granaries and a stake from the fences and organic residue on a sherd, all point towards a period of occupation which is broadly contemporaneous to the date ranges of sites 5 and 6 (2σ: 1440–1380 cal. BC).

## Site 2

At site 2, a house plan comparable to that of site 1 was found. It appears to have been rebuilt on the same spot. This three-aisled house (measuring 24 by 5.8 m) consisted of eight pairs of roof-bearing posts placed at intervals varying between 1.5 and 2.6 m and spanned 3 m. Entrances seem to have been present at both short ends. The wall was built up of stakes placed in a single row. Most granaries are found to the southwest of the house, some others to the east. Again, a cluster of pits was found to the north of the house. Stretches of fences to the east of the house might demarcate a farmyard, but its extent or overall layout could not be reconstructed. A post-stump from one of the

houses could be dated to the second half of the 15th century BC (2σ: 1495–1395 cal. BC), which is comparable to the occupation of the other sites.

## Site 4

The house plan of site 4 was only partially uncovered, as a modern ditch cuts through it. Its recovered length is 11 m and its width 6.7 m. There is some problem with the reconstruction of the house plan. It could be of the same type as those at site 1 and 2, but an extra row of posts alongside the north-eastern part of the house may belong to the plan as well. In that case, the house plan is of the half-portal type. As the inner and outer uprights are not placed opposite each other, but instead alternating, it resembles a house plan identified at Blerick (Theunissen 1999, 193, fig. 4.53). Unfortunately only one post was found alongside the south-western part of the house that may be seen as a counterpart and the posts forming the portal may be considered to be too far apart. Besides two granaries and some fences that do not seem to be linked to the house on the basis of location and orientation, a remarkably high number of large pits were discovered. A post from the house was dated to the first half of the 15th century BC (2σ: 1520–1425 cal. BC) that is slightly older than the dates available for the other house sites.

## Occupation period of all sites

If we combine all Middle Bronze Age-B dates obtained for the occupation of the various Eigenblok sites (1–6), we can estimate an overall period of habitation. The combined dates per site show a remarkable conformity (Table 8.2). A maximum period of occupation of 560 years, starting around 1690 and ending around 1130 BC is suggested.

The six sites, however, not only yielded dates belong-



Fig. 8.7 Eigenblok site 4: overview of features and structures.  
Legend: a: Structures; b: Not excavated; c: Features belonging to the structures; d: Pits

ing to the second half of the Middle Bronze Age (Middle Bronze Age-B: 1500–1100 BC), but also from an earlier period (Late Neolithic - Middle Bronze Age-A: 2250–1500 BC) as well as a later period (Late Bronze Age of Early/ Middle Iron Age: 1050–500 BC). As the sites are situated in the river area, the landscape changed considerably because of erosion and sedimentation during the whole length of these periods. The periods of habitation seem to be separated by short periods in which crevasses were formed, flooding parts of the area. Samples from two crevasse gullies, branching off from the reactivated main residual gully of the Eigenblok meander belt indicate that around 1920–1680 cal. BC (2 $\sigma$ ) and around 1400–1190 cal. BC (2 $\sigma$ ), the area may have been too wet to be inhabited. The Middle Bronze Age-B occupation is placed between these two events. A sample taken from the flood plain deposits close to site 2 that were formed after the first crevasse gully filled up was dated to 1450–1260 cal. BC (2 $\sigma$ ), contemporaneous with the main habitation period.

If this correlation between periodisation and crevasse events is true, we can consider these three periods to represent distinct units and we can incorporate all dates from Eigenblok in a single sequence calculation using OxCal v3.10. Figure 8 shows all archaeological dates combined with the dates of the silting up of the main residual gully of the Eigenblok meander belt, the crevasse gullies and a date taken from the floodplain deposits contemporaneous to the occupation during the Middle Bronze Age-B. The overall agreement index is high (99.4%) and well above the 60% needed to have a reliable sequence. Only a single date from site 6, an isolated post, is an outlier with 36.3% and may, therefore, belong to either the first period or the second.

Using this sequence calculation, the period of occupation during the Middle Bronze Age-B can be restricted further (Table 8.3). All samples from this period date at least from the period between 1425 and 1390 cal. BC (2 $\sigma$ ). The maximum period of occupation is calculated between

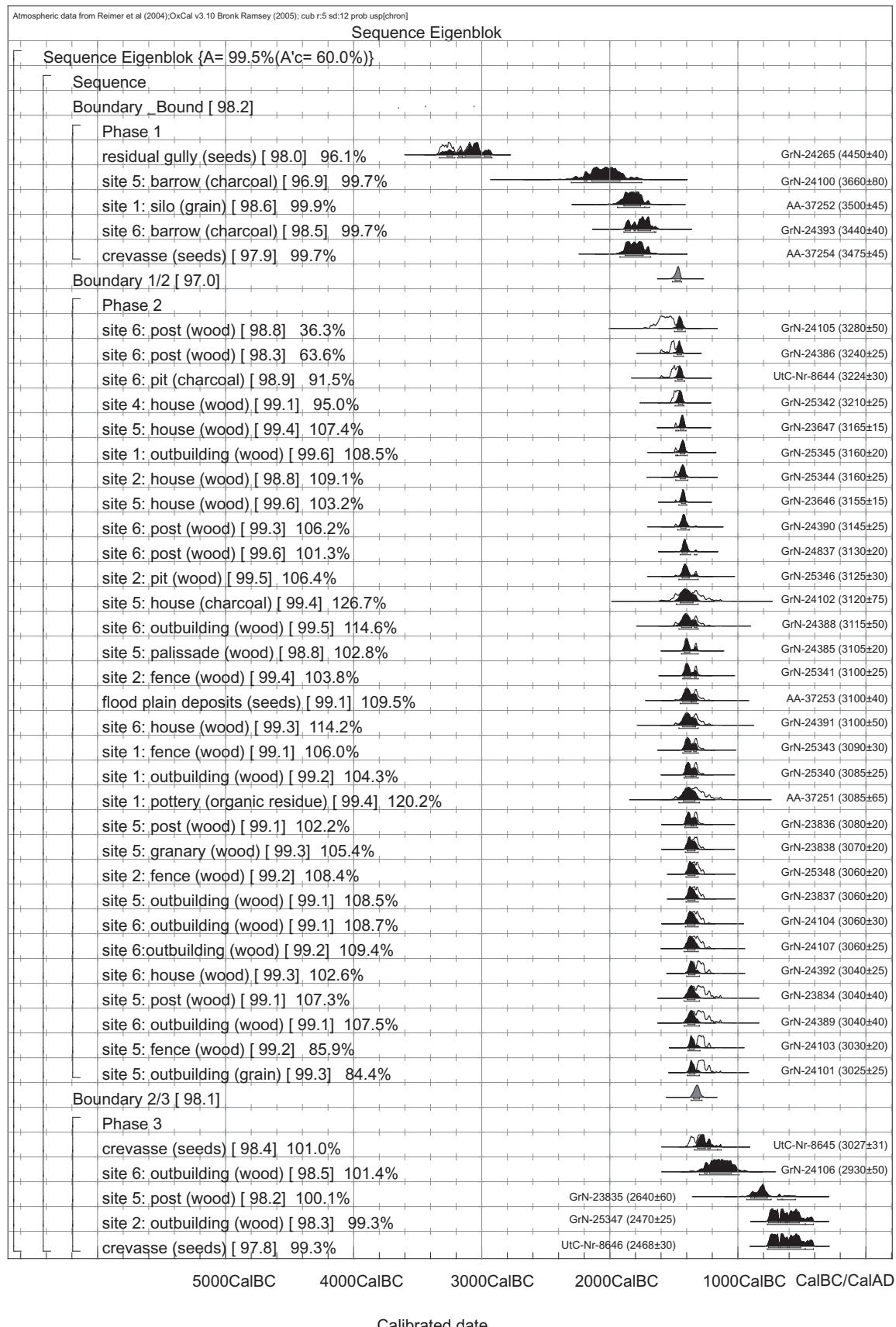
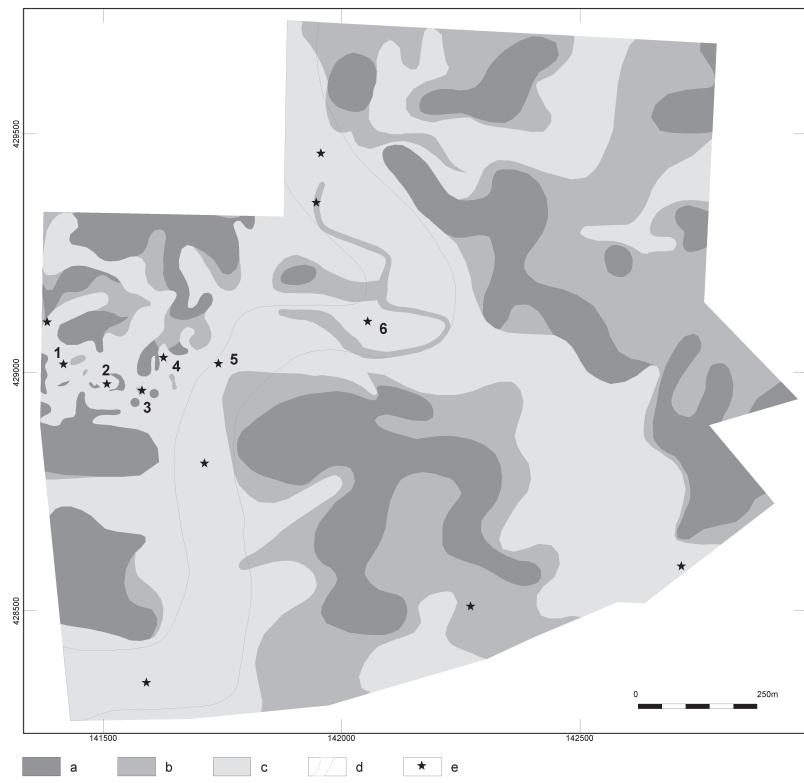
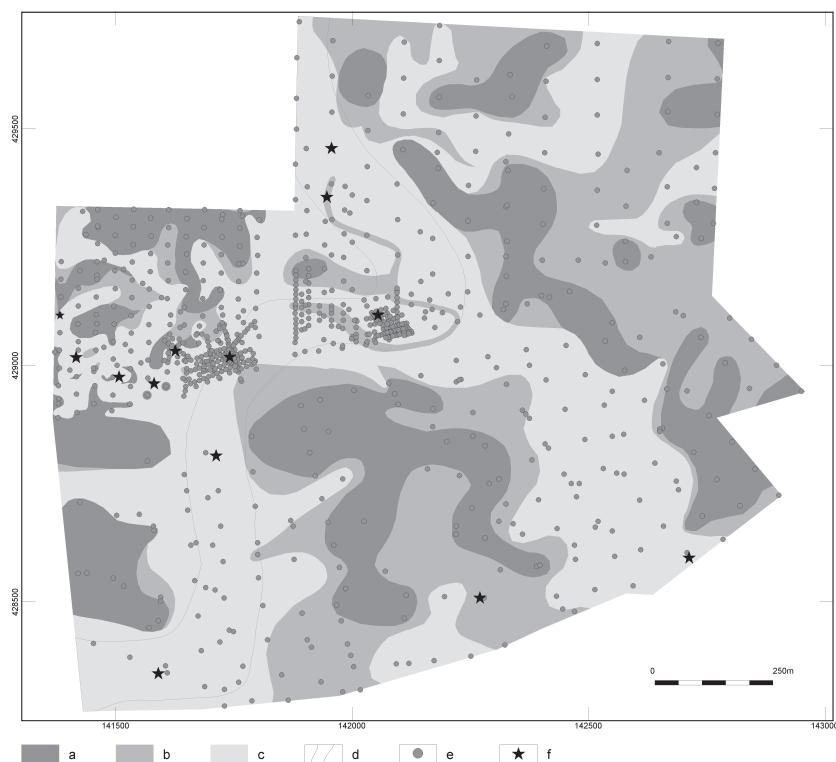


Fig. 8.8 Sequence calculations of all dates from Eigenbok (including landscape events)



*Fig. 8.9 Overview of all surveyed sites plotted on the Middle Bronze Age landscape.*  
*Legend: a: Peat and heavy clay; b: Heavy clay; c: Sandy clay and silt; d: Meander belt; e: Location of the sites*



*Fig. 8.10 The same as fig. 9. Now with all coring locations.*  
*Legend: a: Peat and heavy clay; b: Heavy clay; c: Sandy clay and silt; d: Meander belt; e: Coring; f: Location of a house site*

<b>Soil</b>	<b>Ha (total)</b>	<b>Extensive survey</b>	<b>Detailed survey</b>	<b>Used as</b>
Sandy clay and silt	75	66.5	8.5	Settlement area and arable land
(Heavy) clay and silt	50	47	3	Pastureland
Peat and heavy clay	45	39.5	5.5	Resources (wood, fish, game etc.)
Total	170	153	17	

Table 8.4 Extent of the different soil types within the surveyed area

<b>Region</b>		<b>Ha arable land per household</b>	<b>Ha pastureland per household</b>	<b>Total</b>
Bovenkarspel	Coastal area	8.2	20	28.2
Drenthe	Northern Pleistocene	11.7	32	43.7
Eigenblok	River area	12.5–15	8.3–10	18.8

Table 8.5 Comparison of land-use between Eigenblok, Bovenkarspel and the Drenthe Plateau. Figures based on an average of 20 cows per household of 10–12 persons

1500–1295 cal. BC (2σ). This means an occupation period of 35–205 years. To play it safe, an occupation period of 200 years is chosen here.

## Land use

During the physical geographical survey more house sites were found (13 including the excavated sites: Fig. 8.9). Based on the palaeogeographical map, a calculation is made of the number of hectares of light, silty soils on top of the meander belt and the crevasse splay deposits, and those of clayey and peaty soils of the floodplain (Table 8.4).

All presumed house sites are located on the lighter soils. Indications for arable land were found in coring samples from these soils as well, and ard marks were found during the excavations, especially on top of the meander belt. Hoof imprints suggest that the heavy clay soils were used as pastureland. Finally, the parts with peat and heavy clay may have contained the swamp alder forests that provided for other natural resources such as timbers and firewood.

Part of the area (17 ha), west of the location of site 5 was mapped in more detail (coring in a grid of 20 m instead of 75 m overall: Fig. 8.10), producing five sites (including sites 1–4), all situated on the lighter, silty deposits (8.5 ha). If we were to extrapolate this and calculate the number of sites situated on the lighter soils in total (75 ha), we would expect a total number of 44 house sites to be found during a high resolution coring campaign of the whole area (75/8.5 \* 5).

Given the chosen total span of 200 years of occupation and the supposition that each site was occupied for at least 25 years, this would mean that the area contained 5–6 households at any given moment during the Middle Bronze Age-B (44\*25/200). In that case, each household

would have been able to exploit 28–34 ha in total of which 12.5–15 ha could be used for settling and crop cultivation and 8.3–10 ha as pastureland. The swamp alder forests and wet bogs (7.5–9 ha per household) produced enough resources (building materials, firewood, clay, fish and game, fruits and nuts and fodder). In the vicinity, several active rivers provided for the necessary lines of communication and exchange to obtain goods like flint, stone artefacts, bronze objects, etc. If we compare these figures with data from other Bronze Age settlement sites from West-Friesland ('Bovenkarspel': IJzereef 1981, 178, table 52) and the model for the western part of the Drenthe Plateau (Fokkens 1998, p. 144, table 27), there are some differences (Table 8.5).

The comparison of the Eigenblok data to that of the sandy soils of the northern Netherlands may be hampered by the fact that the latter soils are less fertile compared to those of the river area. Therefore, a comparison to the – presumably equally fertile – creek-ridge landscape of West-Friesland might be more appropriate. The amount of arable land is comparable, but there is a difference in the amount of pastureland. We may try to correct this by using part of the arable land for pasture, but that will not solve the problem. This difference may be related to the fact that the area prospected for the palaeogeographical map is too restricted and is biased in its focus on the vicinity of the settled areas. Had the prospected area been extended further towards the east and west, moving away from the meander belt, we would have found larger areas of floodplain deposits consisting of heavy clay and less lighter soils that could provide for pastureland.

On the other hand, it may also be the case that the Eigenblok premises are wrong. If we used the data from Bovenkarspel to correct the Eigenblok figures, we could only do that by lowering the number of contemporane-

ous households in the area. In that case there are three options:

- 1 Reducing the life span of a house site. If, as is done for Bovenkarspel, we use 15 year as the maximum life span per house, we end up with only three households at any given time. At present, however, a 15-year life span is considered to be too short (Roymans and Fokkens 1991, 11; Jongste and Van Wijngaarden 2002, 612–616; Meijlink and Kranendonk 2002, 803; Knippenberg, this volume).
- 2 Increasing the period of occupation. In this case the selection of sites excavated at Eigenblok is not representative for what is to be expected elsewhere in the area. There is, however, no reason why this would be the case.
- 3 Reducing the number of house sites expected. It is well possible that in the extrapolation of the number of sites discovered in the more detailed mapped area west of site 5 we are misled by the overrepresentation of sites in this zone. As the crevasse splay deposits in this specific zone extend well into the area of the former floodplain, creating a small plateau, possibly precisely these locations were favoured over the more restricted levee and channel deposits of the meander belt elsewhere.

To conclude, we have to allow for the possibility that overall the Eigenblok region was more extensively settled than expected on the basis of results from the high-resolution survey west of site 5. This means that perhaps fewer households (say 2–3) were contemporaneous at a certain moment during the Middle Bronze Age-B, but it also means that many house sites clustered in specific areas within the Eigenblok region. In this case on plateaus formed by crevasse splay deposits adjacent to meander belts.

## Settlement pattern

The accepted image we have of Middle Bronze Age occupation of the river area is of a mixed farming society that to a great extent was self-supporting (Fokkens 2003). The long houses were flanked by granaries and other outbuildings, pits and wells and were surrounded by fences that demarcated farmyard and fields. Local farming communities comprising several households of 10–12 people (extended families) are reconstructed to have worked the fields and grazed the cattle. A clustering of house sites is also been observed elsewhere in the river area.<sup>1</sup> The question is, whether such clustering of house sites should be interpreted in terms of social choices. The underlying landscape of these sites consists of vast areas built up by levee- and channel deposits and crevasse splay deposits (Zijderveld, Tiel, De Bogen, Wijk bij Duurstede), sandplains (Rhenen), ground moraine and coversand ridges (Hijken) or tidal creek deposits (Bovenkarspel). These extensive landscapes could sustain several households at

a close range at the same time.

This clustering of house sites may explain the collectivity expressed in the layout of house plans and farmyards (cf. Bourgeois and Arnoldussen 2006, 21) and may also have been the main reason to build and rebuild field boundaries by way of fences dividing up the land in parcels as property or as marked out pieces of land to be cultivated during a life span of a given household (Knippenberg and Jongste 2005).

The house types that have been found, not only express uniformity, but to some extent also show a striking variability. Although five of the seven houses are of the same 'general 'wetland' types expected for the river area, two house plans (those of site 2 and 6) clearly differ in construction and layout. Both share parallels in the southern Netherlands ('Oss' and 'Blerick') and may be characterised by the use of a so-called 'half-portal' construction, resulting in a doubling of the number of rows of roof-bearing posts. Within the river area, similar 'half-portal' houses were found at 'Lienden' (Schoneveld & Kranendonk 2002). The two 'half-portal' houses at 'Eigenblok' do not date to a different period and there are no clear indications for a difference in function or use. The only difference is the slightly larger width (6.7/6.8 m) compared to the other house plans (5.8–6 m).

One may wonder whether the families living in these houses made some sort of social statement by using a different construction. Possibly, it expressed membership of a different social group as opposed to the people living in the 'wetland-type' houses. It may well be that both types (and others for that matter) were socially accepted variations in longhouse construction, sharing size and three-aisled layout as the main characteristics. The system used to organise the interior or solve the problem of roof construction spanning more than 5–6 m was up to the people building and using the houses.

## Conclusion

The excavated sites at Eigenblok show that during the Middle Bronze Age, conditions in the river area were very favourable to farming communities, which profited from the close proximity of lighter soils rich in natural minerals, ideal for crop cultivation, and the wet meadows in the floodplains that could be used as pastureland for their cattle. People settled on top of the fossil meander belt and the adjacent crevasse splay deposits. In two cases, they chose to settle close to a barrow monument from an earlier period (Late Neolithic-Early Bronze Age). The sites were protected from disturbance by later human activities through the layers of sediments covering them. These sediments shielded the finds and features from oxygen and as the deeper features were dug down to well below the groundwater table, the stumps of various wooden posts were preserved. It was therefore possible to obtain many radiocarbon dates for the construction wood itself. The

ample radiocarbon dates made it possible to calculate the life span of an individual house site and combined with the dates from other house sites a calculation of the total occupation period was possible. A picture emerged of 200 years of occupation by 3–4 households at any given time in an area of 70 ha. This occupation may have ended abruptly at the end of the Middle Bronze Age-B (13th–12th century BC), when crevasses were formed, which temporarily made dwelling impossible. People returned during the Early and Middle Iron Age, but conditions were less favourable to occupation as the landscape consisted of few dry areas to settle and to use as arable land. Finally, at the end of the Iron Age, the area of Eigenblok must have been deserted altogether, as at that time it was covered by floodplain deposits. It was not until after the Second World War, by artificially lowering the groundwater level that the land could be reclaimed and used as pastureland.

## Acknowledgements

The author would like to thank Hans van der Plicht, who was so kind to read the draft and place some very useful comments. Furthermore, he would like to thank Alice Samson for correcting the final text.

## Notes

- 1 Zijderveld (Knippenberg and Jongste 2005; Knippenberg, this volume); Tiel (Hamburg and Hielkema, this volume); Rhenen (Van Hoof, this volume); De Bogen (Meijlink and Kranendonk 2002); Wijk bij Duurstede (Hessing 1991).

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## 9 The Bronze Age cultural landscape at Zijderveld

*Sebastiaan Knippenberg*

### Introduction

The archaeological site of Zijderveld, located near to the eponymous hamlet, has been known since the late 1960's and early 1970's, when the State Service for Archaeological Investigations (RACM, formerly ROB) conducted excavations there (Hulst 1965a; 1965b; 1966; 1975a; 1975b; 1991; Theunissen and Hulst 1999a; 2001). Discovered by local amateur archaeologists in 1965, the site was threatened by expansion of the bordering sand extraction site. Being one of the few Bronze Age sites known within the Dutch river area at that time, the State Service for Archaeological Investigations decided to initiate a rescue excavation. Under the supervision of state archaeologist Rudy Hulst, three campaigns were held during the summers of 1965, 1970 and 1971. These archaeological field campaigns uncovered a well-preserved Bronze (and Iron) Age habitation site.

Due to the limited time available, archaeological work focussed on opening-up large areas and mapping soil features, rather than carefully excavating find layers. In total, between 1965 and 1971 c. 1.2 ha was excavated (Fig. 9.1). Use was made of a mechanical shovel to reach the feature level after which all man-made features were drawn and the majority sectioned. The work resulted in the identification of one of the first Middle Bronze Age house plans known from the Dutch river area (Hulst 1973). The large house was surrounded by numerous granaries. The good preservation of the site was shown by the identification of thousands of shallow features, including numerous cattle hoof imprints and many stakeholes, which were the remains of fences and walls. Careful study of the fences and structures finally allowed the reconstruction of a Bronze Age farmyard, presumably surrounded by fields that

were used for crop cultivation or the grazing of livestock. From the excavations it became also clear that the area was not only occupied during the Middle Bronze Age. Human activity started during the Neolithic, as was evidenced for by high percentages of cultivated plants in the pollen samples studied for the site (De Jong 1970/1971; see also Theunissen and Hulst 1999a; 1999b). The botanical data suggest that Neolithic farmers were present in the area and were cultivating fields. Associated evidence for Neolithic habitation, however, was then not found. Evidence of occupation post-dating the Bronze Age was much clearer. In addition to the Middle Bronze Age house plan introduced above, an Early Iron Age house plan was discovered as well in association with a granary and a worked soil layer (Hulst 1967, 6–7; Theunissen and Hulst 1999b, 162–163). From the excavation plans it is clear that many of the identified fences should be associated with Bronze Age occupation as they are cross-cut by the Iron Age house and do not run across the Bronze Age house plan.

The youngest human activity on the site is represented by a brushwood trackway which could be radiocarbon dated to the Late Iron Age (Theunissen and Hulst 1999b, 159, 170–171). Apparently, habitation had moved at that time and the area was only traversed. Based on these remarkable results and the fact that the site was not fully excavated, the surrounding area was declared a protected archaeological monument. In the 1990's it was decided that the A2 motorway, which borders the plots with the status of archaeological monuments, had to be widened. This has been the starting point of a second series of archaeological investigations at the site. Following the standard procedure within Dutch Heritage Management, first an archaeological survey in the form of a systematic coring campaign was performed to locate any archaeological remains still present

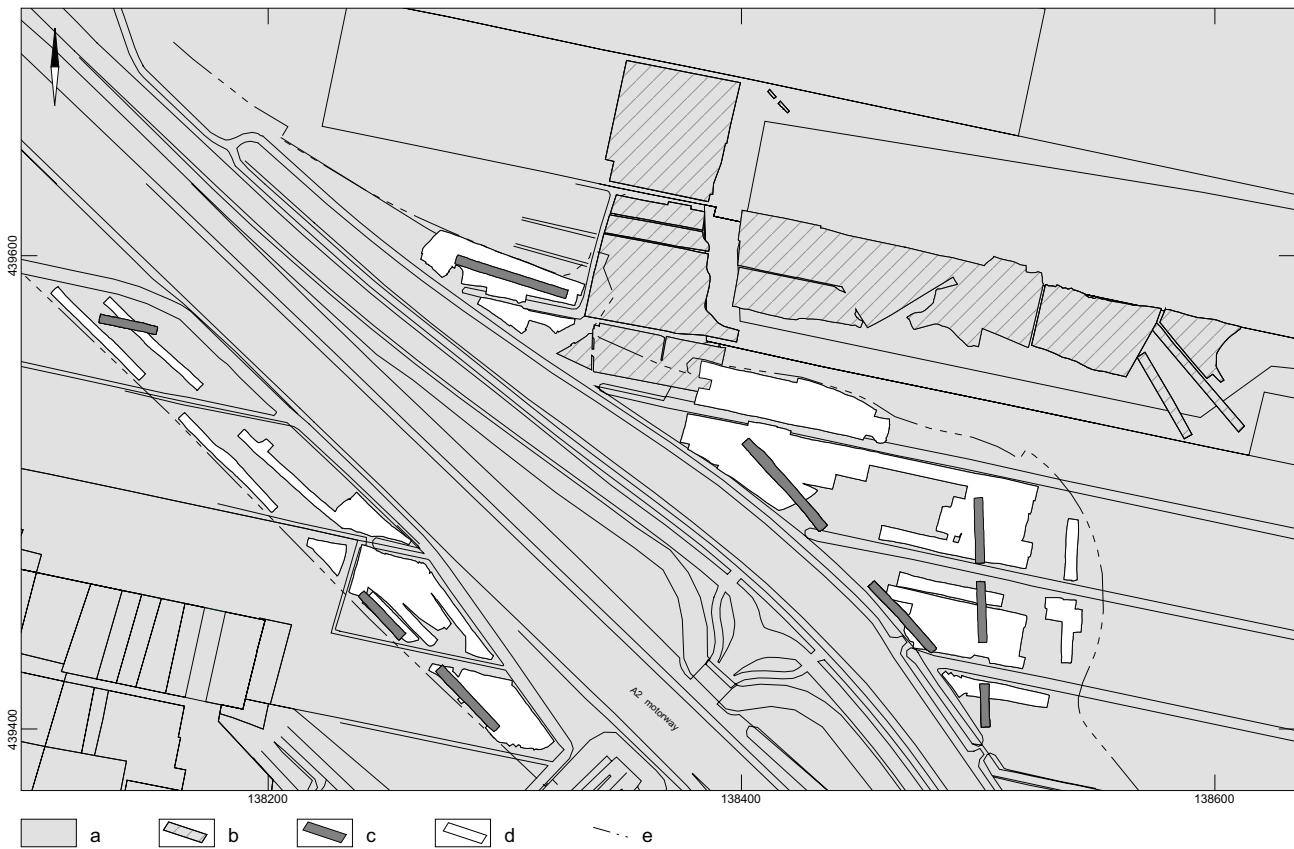


Fig. 9.1 The location of the excavation units at Zijderveld.

Legend: a: Not excavated; b: State Service excavation units (1965, 1970–1); c: Test trenches prior to the excavations in 2004; d: The 2004 excavation units; e: The A2 highway extension border

(Haarhuis 1998). This yielded, albeit scant, evidence of prehistoric activities along both sides of the A2 motorway near the protected plots. Therefore, following this a number of test-trenches was dug to determine the extent, age and quality of the archaeological remains identified during the coring campaign (Arnoldussen 2003). These test-trenches confirmed the presence and quality of archaeological features from the Middle Bronze Age, in particular the remains of fences and hoof imprints. The results of this second phase archaeological work led to the decision to excavate an additional 1.2 ha terrain, divided into areas at both sides of the A2 motorway (Knippenberg and Jongste 2005). This more extensive excavation was nonetheless limited to the areas that were actually to be destroyed by the planned road construction works.

The results from this most recent campaign have been the motive of the present paper. It focuses on the Bronze Age remains with most attention given to the latest results. These new data are used to increase our understanding of the Bronze Age occupation at the site with particular reference to the lay-out of the settlement and its direct surroundings and the duration of its occupation.

## Geological setting and chronology

The Zijderveld site is situated in the central part of the Dutch river area; a geologically very dynamic region. The basis of its Holocene genesis is formed by the deposits of a complex system of late Weichselian and Holocene fluvial predecessors of the Rhine and Meuse rivers (Berendsen 2000, 87). The site itself is situated on top of the channel bed and levee deposits of a fluvial system that is also named after the hamlet of Zijderveld (Berendsen and Stouthamer 2001, 247). This fluvial system was presumably active between c. 4400 and 2500 BC (Törnqvist 1993, 144; Berendsen and Hoek 2005, 21) and partly followed the courses of earlier river channels (Fig. 9.2).1 After the sedimentation had stopped the surrounding clayey flood-basin deposits started to subside, resulting in inversion: the sandy channel bed deposit became a relatively higher ridge in a lower-lying clayey to peaty floodbasin environment (Berendsen and Hoek 2005). As such, it provided a favourable location for human habitation.

Prehistoric habitation remains datable to the Zijderveld fluvial systems' active phase and its ending, the Middle to Late Neolithic, have not been found during the excavations and our knowledge on human activity during this period

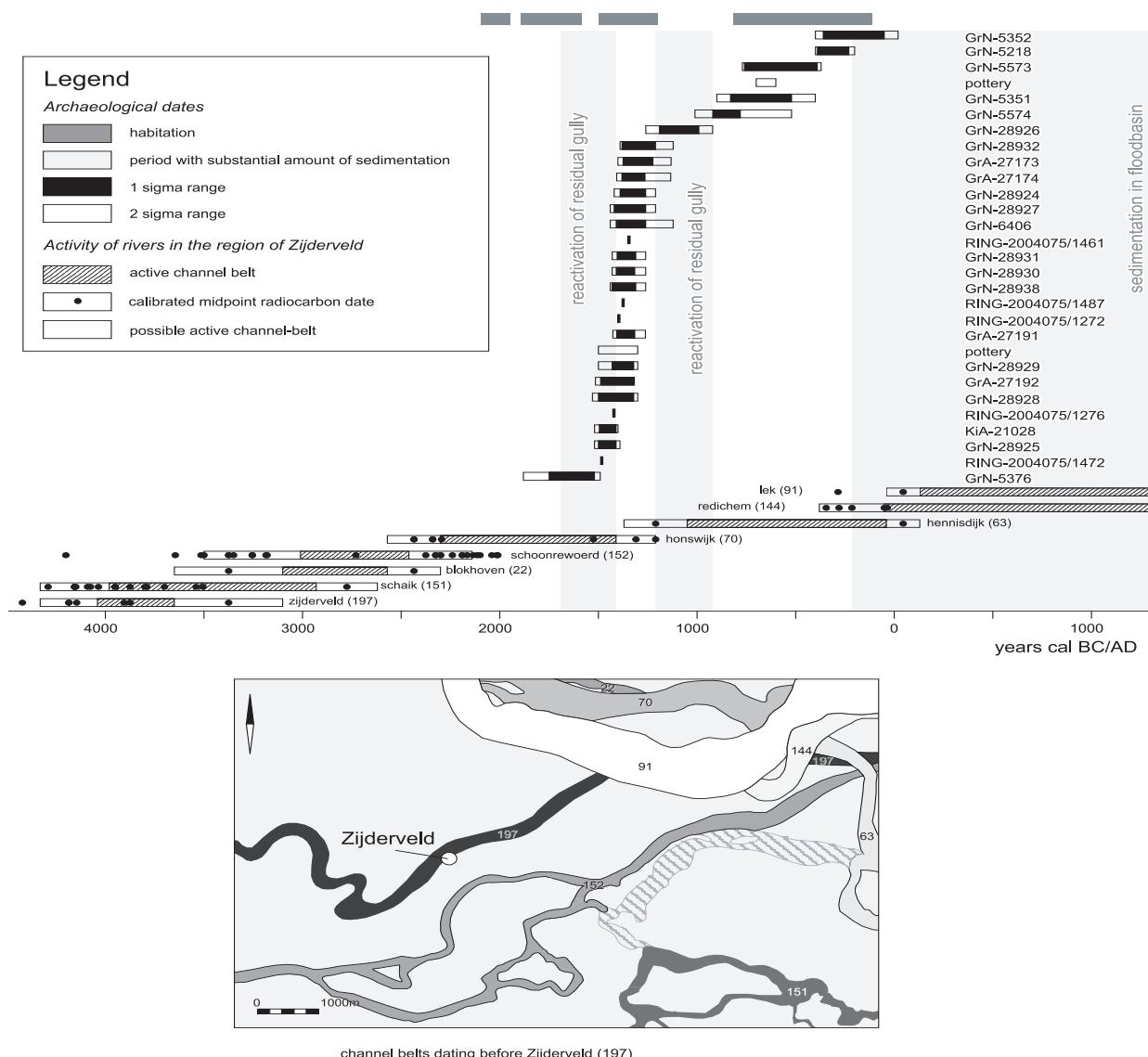


Fig. 9.2 Calibrated  $^{14}\text{C}$ - and dendrochronological dates obtained during archaeological and paleo-environmental research at the Zijderveld site in relation to the active periods of the nearby river systems (after Van Zijverden 2003)

remains limited (see below; Theunissen and Hulst 1999b, 158–159). This may be explained by the fact that the nearby Schoonrewoerd fluvial system river became active somewhere between 3500 and 2400 BC (Berendsen and Stouthamer 2001, 233) and that floodbasin and crevasse deposits from this river have covered parts of the Zijderveld systems' deposits, making it less suitable for permanent occupation.

After the cease of sedimentation by the Schoonrewoerd fluvial system, the area on top of the Zijderveld channel belt deposits presented a dry and suitable location for habitation. Late Neolithic and Early Bronze Age finds, however, are also not known from the area. The first undisputable indication of habitation is a wooden post stump dated to the Middle Bronze Age-A (c. 1880–1490 BC; Theunissen and Hulst 1999b, 158–159). Since this sample is an outlier

compared to the bulk of the formerly and recently dated archaeological samples associated with the Bronze Age habitation, the chance that the remains are older than 1600 BC is low (Arnoldussen and Fontijn 2006).

The major part of the available total of 21 dates related to the Bronze Age habitation, lie between 1520–1400 BC and 1390–1120 BC, clearly clustering in the Middle Bronze Age-B (table 1; Knippenberg and Jongste 2005, 17). The range of dendrochronological dates of preserved construction wood, obtained during the most recent archaeological campaign, is even much smaller: 1489–1477 BC to 1345 BC (table 2 and see Fig. 9.2; Knippenberg and Jongste 2005, 17).

Somewhere between 1440 and 1250 BC the Zijderveld area became regularly flooded again (Berendsen and Hoek 2005, 21), suggesting that the Middle Bronze Age

Lab.nr.	Method	Feature	Material	Context	$^{14}\text{C}$ age (BP)	$1\sigma$ range (cal BC)	$2\sigma$ range (cal BC)
GrN-5221a	Conv.	Gully	Peat	Residual gully	$4620 \pm 60$	3520–3400, 3390–3340 3210–3190, 3150–3140	3650–3100
GrN-5376b	Conv.	Post	Wood	“Round structure”	$3370 \pm 80$	1750–1520	1880–1490
GrN-5220a	Conv.	Gully	Peat	Residual gully	$3265 \pm 60$	1620–1490, 1480–1450	1690–1410
GrN-28925	Conv.	Well	Wood: Salix	House site	$3180 \pm 35$	1500–1470, 1465–1410	1520–1390
KiA-21028c	AMS	Well	Wood: Alnus	House site D	$3174 \pm 25$	1495–1475, 1455–1410	1520–1400
GrN-28928	Conv.	Watering pit	Wood: Salix	House site B	$3150 \pm 50$	1500–1380, 1340–1320	1530–1300
GrA-27192	AMS	Post	Charcoal: Alnus	House D	$3140 \pm 40$	1490–1470, 1450–1380 1340–1320	1520–1310
GrN-28929	Conv.	Post	Wood: Alnus	House B	$3120 \pm 30$	1430–1380, 1340–1320	1500–1470, 1450–1300
GrN-28933	Conv.	Post	Wood: Alnus	Granary 18	$3110 \pm 30$	1430–1370, 1340–1310	1440–1290, 1280–1260
GrN-28930	Conv.	Watering pit	Wood: Alnus	House site B	$3090 \pm 40$	1410–1365, 1360–1315	1430–1260
GrN-28931	Conv.	Post	Wood: Salix	Granary 10	$3090 \pm 30$	1420–1310, 1280–1260	1440–1250, 1240–1210
GrA-27191	AMS	Posthole	Charcoal: <i>Prunus Spinosa</i>	Granary 32	$3085 \pm 35$	1410–1310	1430–1260
GrN-28927	Conv.	Post	Wood: Alnus	Granary 20	$3080 \pm 30$	1405–1310	1430–1260
GrN-6406b	Conv.	Post	Wood	Granary	$3065 \pm 55$	1410–1260	1440–1120
GrN-28924	Conv.	Small post	Wood: Salix	Fence	$3060 \pm 35$	1390–1290, 1280–1260	1420–1250, 1240–1210
GrA-27174	AMS	Round ditch	Charcoal: Salix	House site B	$3050 \pm 35$	1390–1260	1410–1210, 1200–1190
GrA-27173	AMS	Watering pit	Charcoal: Salix	House site C	$3040 \pm 35$	1380–1330, 1320–1250 1230–1220	1410–1210, 1200–1190 1180–1160, 1140–1130
GrN-28932	Conv.	Post	Wood: Alnus	House B	$3025 \pm 30$	1380–1330, 1320–1250 1240–1210	1390–1160, 1140–1120
GrN-28926	Conv.	Post	Wood: Populus	Fence	$2890 \pm 50$	1190–1170, 1160–1140 1130–990	1260–1230, 1220–920
GrN-5219a	Conv.	Gully	Peat	Residual gully	$2880 \pm 35$	1130–1000	1210–1170, 1160–920
GrN-5574b	Conv.	Small post	Wood	Iron Age House	$2665 \pm 80$	920–780	1010–750, 720–520
GrN-5351b	Conv.	Post	Wood	Granary	$2565 \pm 100$	830–520	900–400
GrN-5573b	Conv.	Post	Wood	Iron Age House	$2390 \pm 65$	760–690, 550–390	770–370
GrN-5218a	Conv.	Gully	Peat	Residual gully	$2260 \pm 40$	400–350, 300–230 220–210	400–340, 330–200
GrN-5352b	Conv.	Branch	Wood	Iron Age track	$2150 \pm 90$	360–280, 260–50	400–20AD

Table 9.1 Zijderveld;  $^{14}\text{C}$ - en AMS dates from the 2004 excavations and earlier research.

Legend: a: from De Jong (1970–71, p. 82); b: from Theunissen (1999, p. 158–159); c: from Arnoldussen (2003, p. 30).

Conv. = conventional  $^{14}\text{C}$ -date; AMS = Accelerated Mass Spectroscopy

habitation must have ended somewhere between 1345 BC (the youngest dendrochronological date) and 1250 BC. The excavations have yielded only a single date for

younger habitation of the area: a small poplar wood stake from a fence was dated between 1260 BC and 990 BC (Knippenberg and Jongste 2005, 17). This is the only

Lab nr.	Feature	Material	Context	Outer ring date	Fell date	Probability	Reference chronology
1472	Post	Wood, Quercus	Granary 19	1503 BC	after 1483 BC ±6	> 99,99%	GOTTB0G5
1276	Post	Wood, Quercus	House B	1437 BC	after 1421 BC ±5	> 99,5%	GOTTB0G5
1272	Post	Wood, Quercus	House B	1416 BC	after 1396 BC ±6	> 98%	GOTTB0G5
1487	Post	Wood, Quercus	Granary 21	1390 BC	after 1374 BC ±5	> 99,99%	NLBOG2BC
1461	Watering pit	Wood, Quercus	House site B	1350 BC	ca. 1345 BC	> 99,9%	NLBOG2BC

Table 9.2 Zijderveld; dendrochronological dates (RING report 2004075) from a selected number of oak samples

undisputable Late Bronze Age find. For the Iron Age, the early State Service excavation campaigns had yielded several radiocarbon dates (Theunissen and Hulst 1999b, 158–159), which have not been supplemented by the recent work. These basically can be divided into two periods of activity. The first phase during the end of the Early Iron Age is associated with the house published by Hulst (1973; Theunissen and Hulst 1999b, 158, 164). The second Iron Age phase, which consists exclusively of the brushwood trackway was dated between 400 BC - AD 20 (Theunissen and Hulst 1999b, 158–159). Somewhere during or after this last phase, the area became unsuitable for habitation again due to the start of sedimentation by the Lek and Linge rivers which are situated approximately 2 km to the north of the site (Berendsen and Stouthamer 2001, 213–216). Once more, the area was covered by a layer of clayey floodbasin deposit.

## The 2004 excavations

From January to late March 2004, parts of the A2 motorway trajectory were excavated by Archol bv, the excavation company associated with Leiden University. During this campaign we tried to fully excavate the area depicted in figure 1. A systematic strategy was adhered too. First the topsoil was removed until the vegetation horizon was reached on which the prehistoric people settled (i.e. the soil formed within the clayey deposits, after the area became dry). From this point, a special scraping shovel was used, which makes it possible to scrape thin layers of clayey soil. All finds were collected in 5 by 5 m squares in areas with low find density and in 2 by 2 m squares in areas of high find densities, following the methodology used previously at Eigenblok (Jongste and Van Wijngaarden 2002).

This process continued until the lower limit of the vegetation horizon was reached and features became visible in the lighter soils underneath. At this level the scraping shovel was used to create a perfectly flat surface, in which it was possible to recognise even the smallest darker coloured features in the lighter coloured subsoil. All features, as well as natural phenomena, such as gullies and changes in the composition of the subsoil, were mapped. After drawing, the features were sectioned and the sections were drawn as well. From a limited number of features soil samples were

taken for fine screening and (macro-)botanical analysis.

This strategy resulted in the recovery of more than 1500 features, including a variety of pits (such as wells, watering pits and a large number of undefined pits), postholes, stakeholes, hoof imprints, ditches and natural gullies (Fig. 9.3). Careful inspection in the field and in-depth analysis of digitalised field drawings resulted in the additional identification of three house plans, 31 granaries and over 100 fence lines. These features and structures were recovered from all parts of the excavated area.

All houses were found in relatively higher parts of the terrain, where the tops of the sandy channel deposits are situated, or where levee deposits overlie these sandy deposits. These areas formed small elevations of the Bronze Age surface. Furthermore, all houses are located in the vicinity of a residual gully (see below). Two of the three houses were found nearby house A, which had been excavated by the State Service for Archaeological Investigations in 1971 (Fig. 9.4). The larger house B, which is located approximately 57 m to the southeast from it, is similar in size (30 m) and has the same orientation as house A (see Fig. 9.4). The other one, house C, is even closer to house A, and was found 30 m to the west of it. This house is smaller, only 19 m in length and has a north-south orientation. House D was discovered at the other side of the motorway. It is the smallest house identified at Zijderveld with a length of only 14 m (see Fig. 9.4). It is also the only identified house situated to the south of the residual gully at approximately 30 m distance from the former channel. Based on local topography, find distributions and the orientation of fence lines, the location of a fifth house is suspected at the southern side of the highway to the north of the residual gully beyond the southern limits of the excavated terrain.

A remarkably low number of finds was recovered when the size of the excavated surface and the large number of identified features are considered. Not more than 1900 fragments of pottery, 221 pieces of stone, 7 flint artefacts and 1005 pieces of animal bone were recorded. The many pieces of wood preserved (97), however, form a welcome exception. A similar low number of finds was reported from the earlier State Service excavation campaigns (Theunissen and Hulst 1999b, 172–177). This overall paucity of material remains can be explained by the erosive effect that the later Honswijk crevasses had executed to the original prehistoric



Fig. 9.3 Excavation map showing all features (b) and structures (c) with (a) depicting the non-excavated areas. The capitals A-D refer to the different maps of the house sites in figure 4

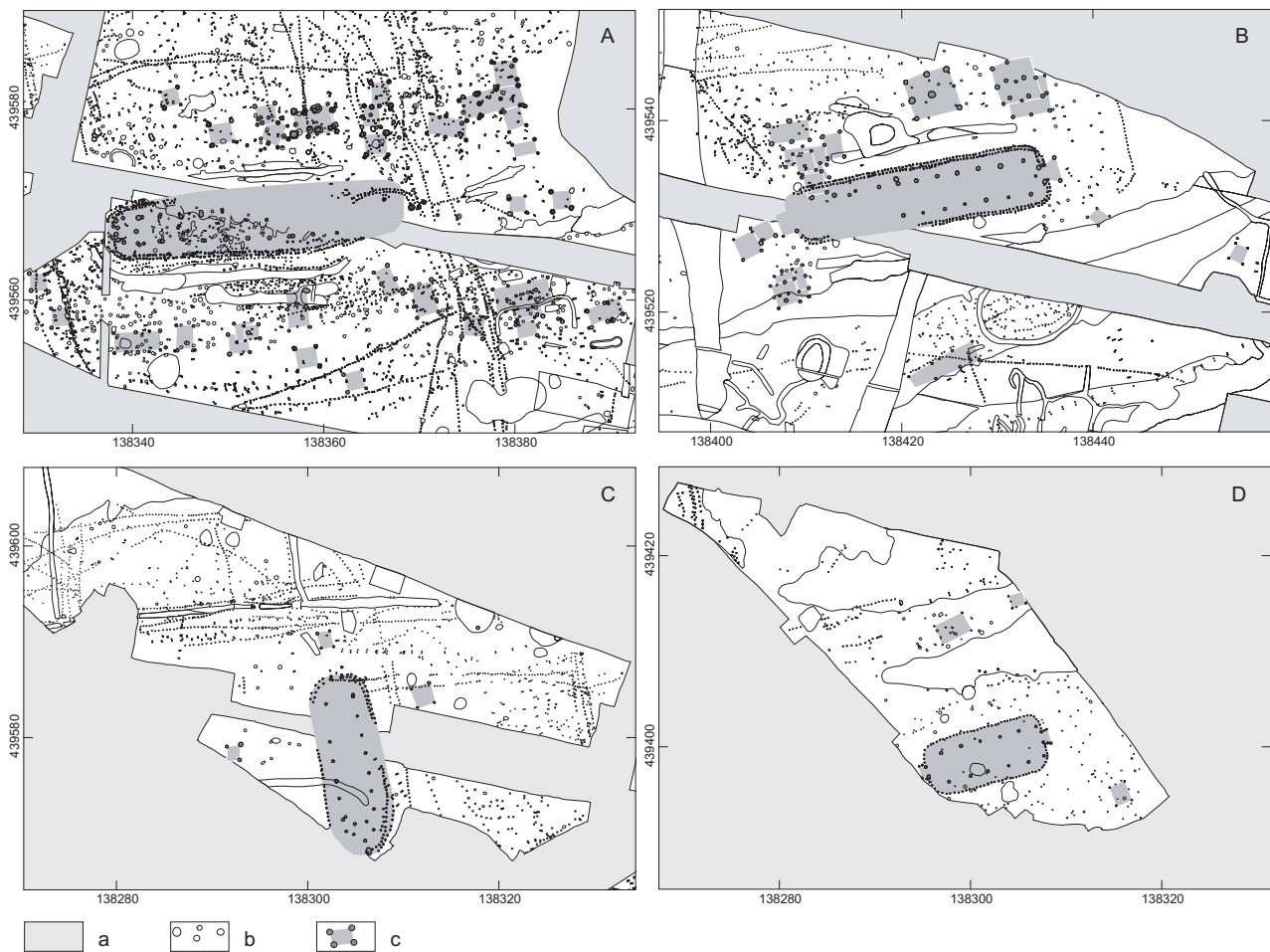


Fig. 9.4 Plans of the four Middle Bronze Age house sites at Zijderveld.

Legend: a: Not excavated; b: Features; c: Structures (houses and granaries). See figure 3 for location of the house sites within the Zijderveld site

surface. Only in a single localised area, much of the top of the original soil had been preserved. There, the density of finds was high. Unfortunately, no well-preserved find layers covered any of the identified house plans, as was the case at some recently investigated Bronze Age sites in the nearby region (Eigenblok, De Bogen: Jongste, this volume; Meijlink, this volume). The higher position of the house sites made these vulnerable to later erosion. The only finds that can be associated with some of the house sites originate from fills of some of the watering pits, which were apparently used as refuse dumps after their primary function as water source for the cattle was ended.

## The Bronze Age houses

The recent excavations have yielded some very well preserved Bronze Age house plans (see Fig. 9.4). Not only the postholes of the large roof bearing posts, but also the small stakeholes of the wall fences are preserved, providing us with a complete view on the original plan. All recently

discovered houses at Zijderveld are very similar to the house already discovered in the nineteen sixties. They all conform to the same general plan, which is typical for the Middle Bronze Age building from the river area (Fokkens 2005). The core of the house consists of two rows of large roof-bearing posts. At a distance of approximately 1.3 - 1.4 m small stakes were placed which formed the base of the wattle and daub walls. Two entrances were present, both at a short side of the structure. The close similarity of the plans is further supported by the small variation in width of the houses (6.37 - 6.50 m), in distance between the two rows of central posts (3.47 - 3.22 m), the spacing of pairs of roof-bearing posts (2.02 - 2.20 m), the distance between the wall and the central posts (1.26 - 1.40 m) and the width of the entrance (1.10 - 1.50 m). This suggests the existence of a strong tradition in house building at Zijderveld, which not only adheres to this site, but which has a more regional spread (Arnoldussen and Fokkens, this volume; cf. Hessing 1991, 45; Hulst 1991, 57-58).

Interestingly some variation is present as well. Most striking are the differences in the size of the houses. Two

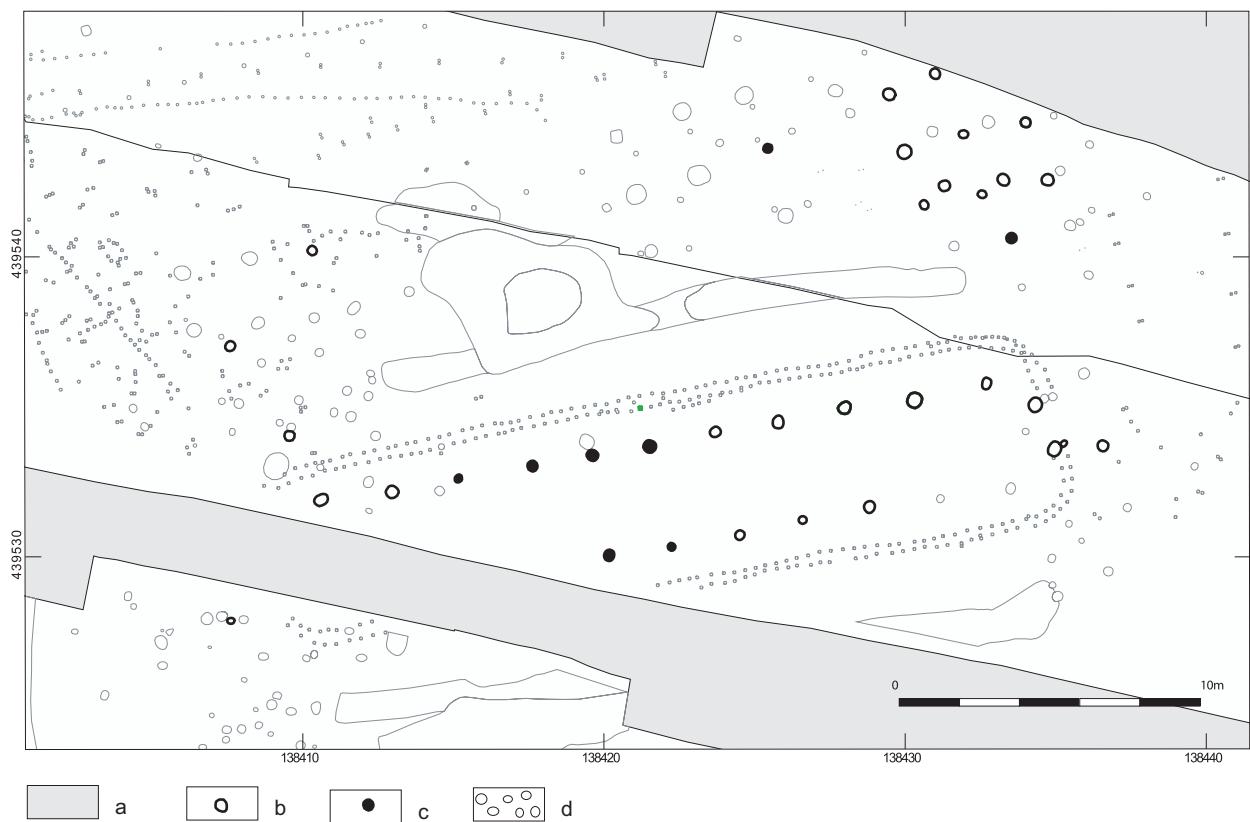


Fig. 9.5 Provenience of recovered wooden post parts in posthole features in house B and associated granaries.

Legend: a: Not excavated; b: Alder wood stumps; c: Oak planks; d: Other features without wooden posts

large, almost similarly sized houses clearly stand out from the other two, which are much smaller. Both large houses are accompanied by ditches, whereas the smaller ones lack these features. These ditches are interpreted as drip gullies and probably also functioned as clay extracting holes for the construction wattle and daub walls. On a more detailed level, variation is discernible in the arrangement of the posts supporting the entrance.

The good organic preservation of the site is demonstrated by the preservation of the stumps of various posts. All wooden post stumps originate from the large house B and its surrounding granaries. In addition, a number of wood fragments were found in the watering pits next to house B. The better local preservation must be attributed to the greater depth of the features of house B and its granaries and the higher groundwater table in this part of the site (Arnoldussen 2003, 61). Detailed analysis of the wood remains from house B and its surrounding granaries showed some interesting things. For the construction of house B and some of the granaries, two types of wood were used. Alder is predominant, but oak is also used (Vermeeren 2005, 101–103). Both types of wood were processed differently when transforming them into posts. Alder trunks were used completely, whereas the oak trunks were split into flat tangential planks (Vermeeren 2005, 101–103). This difference probably relates to the scarcity of oak

and the more general availability of alder in the direct site surroundings. The posts were worked with bronze axes and adzes evidenced by the flat negative tool marks still present on the worked parts of the posts (Vermeeren 2005, 108–110).

Only a few marks were identified which probably were made with a stone axe. Careful analysis and comparison of all marks showed that six different bronze axes were used during the construction of the different structures (Vermeeren 2005, 108–111). Studying the post stumps from individual structures, it was clear that minimally two axes were used during the construction of house B, five during the construction of granary 20 and three during construction of granary 21. The use of five different axes at a single construction event (construction of granary 20) implies the involvement of a considerable number of people, possibly even originating from different local communities (cf. Bourgeois and Arnoldussen 2006, 21).

The arrangement of the oak and alder posts within house 3 revealed an interesting pattern (Fig. 9.5). All eight oak posts were placed in the central western part of the house; they comprise all posts of the third to the sixth truss, whereas all 14 other posts were made of alder (Vermeeren 2005, 112, fig. 7.31). This suggests that the builders intentionally constructed a different – possibly stronger part – in the house; the part with the oak posts.

This central part apparently had a different function. This part may have been reserved for housing the cattle. Study of Bronze Age houses in Angelslo and Hijkerveld in Drenthe, the northeastern part of the Netherlands, revealed the presence of small wall ditches perpendicular to the wall of the house and the central posts (Harsema 1991, 26; 1993, 102–104; Huijts 1992, 36–38). The spaces between these ditches are interpreted as stalls. Although none of such stalls have been identified within the house plans at Zijderveld, the location of the stalls and the area they occupy within the Drenthe houses is similar to the part that is constructed by oak posts within the Zijderveld house. Despite this, it seems that archaeologically visible stall partitions are by and large a property of Bronze Age farms from the north (eastern) part of the Netherlands (Fokkens 2001; Arnoldussen and Fontijn 2006).

To confirm the interpretation of the division of the house into a byre and a living area, phosphate analyses of systematically collected samples have been undertaken. Generally, high concentrations of phosphate are associated with areas where animals (or people) relieved themselves or where a lot of litter was discarded. The results for the Zijderveld houses are, unfortunately, inconclusive (Oonk 2005, 121, fig. 7.35). The highest values were recorded for the areas along the walls, possibly suggesting that the central nave of the house was kept clean and that only in the outer aisles refuse and dung was able to accumulate to some degree. In house C, one of the smaller ones, a concentration of phosphate restricted to one part of the house is suggested. This may indicate that this part of the house was used as byre. However, it should be noted that the highest concentration of phosphate in house C formed the lower values at house B (Oonk 2005, 121, fig. 7.35). Possibly, this indicates a difference in the life span of both houses, the larger house being inhabited over a much longer period.

An analysis of the layout of the site shows that the course of the residual gully probably played a large role in the location and orientation of buildings. (Hulst 1991, 53; Knippenberg and Jongste 2005, 129–131). At the time of occupation it must have been a shallow, marshy depression in the landscape – occasionally containing water. Three houses have a similar orientation as the residual gully and the fourth house C is oriented perpendicular to this.

## The farmyards

The good preservation of the house plans and other structures and the absence of overlying house sites provide an excellent stage for studying the lay-out of the farmyard and its surrounding fields. Granaries and other features, mostly pits, lie scattered around the house plans. Considering their similar orientation and close proximity these small structures and some of the other features must have formed part of the farmyard. Again, a clear difference is noticeable between the (areas around the) large houses and the smaller

ones. The former are surrounded by a significantly larger number of granaries (c. 20) than the latter (c. 3). The high number of outbuildings, also makes them exceptional in comparison to other sites in the region.<sup>2</sup> Ignoring the variation in the area excavated around the houses, which only partly explains the difference, it is clear that the number as well as the location of the granaries is different for the two house sizes. Around the small houses, only a very limited number of granaries was built and at varying distances. This is a pattern that is observed at most Bronze Age sites. In contrast, around house B a fixed arrangement of granary building appears to have existed, specifying that certain locations around the house were reserved for certain types of granaries. These specific granary types were rebuilt up to four times at the same location. If we compare, for example, the granaries to the northeast of the house to those northwest, and to those southwest, it is evident that the north-eastern corner was reserved for large nine-post granaries, whereas at the southwest corner only small four-post ones were present. The northwest corner seems primarily to be the place for six-post granaries. The fact that at the southwest corner minimally four granaries were built one after another and that at the other corners minimally two generations of granaries were present, underline the notion of a well-structured and adhered to arrangement over time. Possibly, this also reflects a functional diversity between the granary types. The difference in number of granaries may partly be ascribed to a long use-life of the large Zijderveld houses. At least, this could be established for house B.

Other features that might have formed part of the farmyard include large deep pits, presumably used as watering holes for cattle, and smaller deep pits, used as wells. Every farmyard is associated with at least one of these pits. Interestingly, the yard around house B has two watering pits, but lacks a well, whereas the small house D has a well, but no watering pit. The incomplete excavation of the yards might explain this difference. It is striking that watering pits are absent in the southwest part of the site.

Unfortunately the limited extent of the excavated areas directly surrounding most of the houses made it impossible to determine the exact size and shape of the associated farmyards. Moreover the fences delineating the yards were only partly identified and excavated. The studies by Hulst and Theunissen (Hulst 1991; Theunissen and Hulst 1999b, 160; Theunissen and Hulst 2001, 201) suggested that there are two types: fences of single stakes set in a line about 15–20 cm apart (type 1a), supposedly with thin branches braided around them and fences of pairs of stakes set 10–15 cm apart and about 1–3 m from each other; the latter with branches piled-up between the pairs of stakes (type 2; Theunissen and Hulst 1999b, 167).<sup>3</sup> Single stake fences were preferably used to enclose the farmyard, whereas the double stake type of fences was primarily used to limit the pastures and fields. The single stake fences are often curvilinear, whereas the double stake fences usually intersect at right angles (see also below).

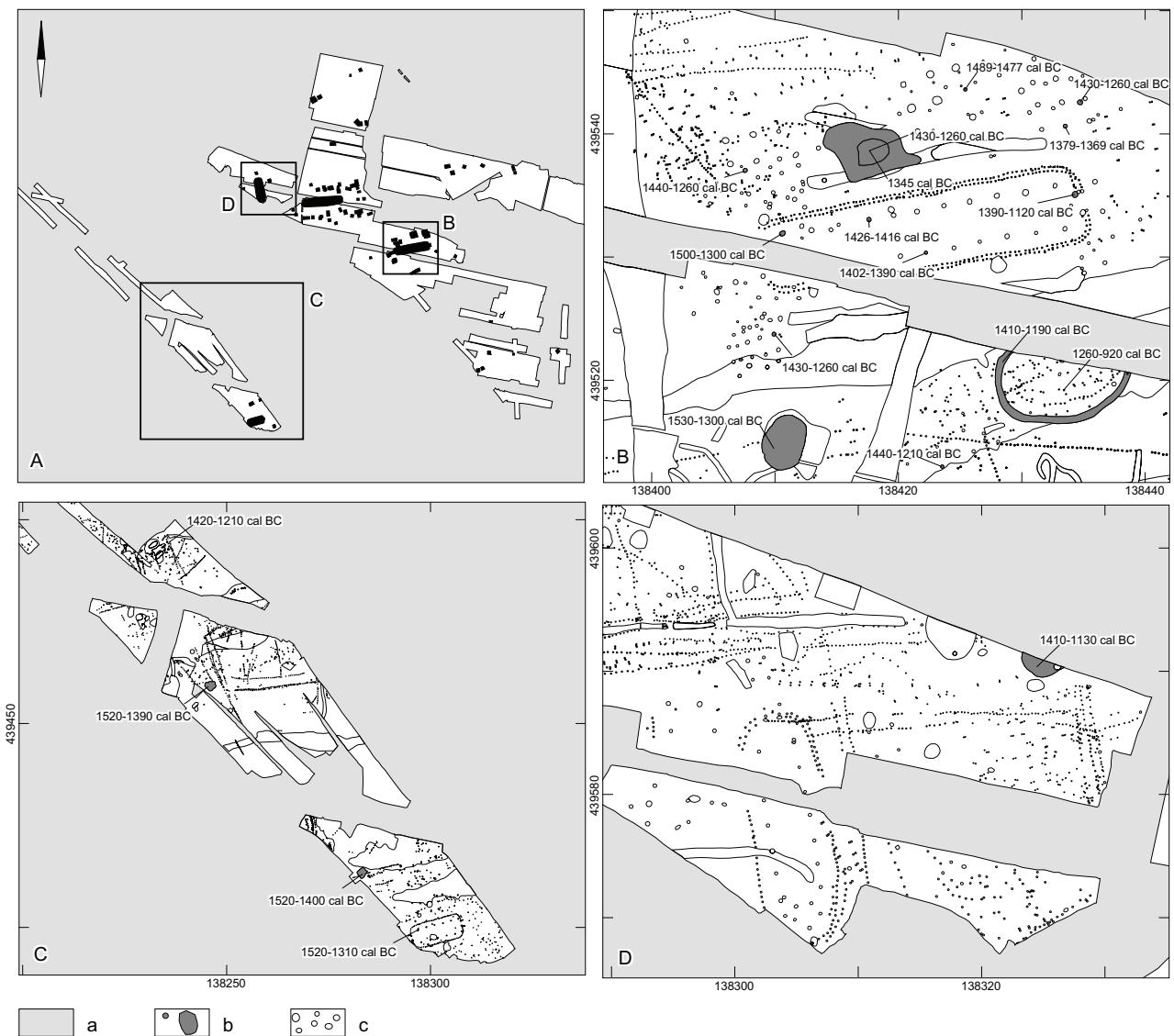


Fig. 9.6 Feature provenience of dated wood and charcoal samples and their 2-sigma calibrated Age range. Legend: a: Not excavated; b: Dated feature; c: Other features

Possibly, these differences in shape can be explained by their construction.

### Dating of the house sites

The exceptional preservation of wood remains enabled us to perform a series of radiocarbon dates as well as dendrochronological dates (Tables 9.1 and 9.2; Fig. 9.6). The  $^{14}\text{C}$ -samples were taken from the outer rings of the wooden posts, charred Salix branches, as well as a charred *Prunus Spinosa* fragment (see Table 9.1). This means that the aging effect of these samples is neglectable. Four oak plank posts and a large oak fragment displayed enough tree-rings to date these by dendrochronology. The wood samples are all associated with house B and its surrounding

granaries and watering pits, making it the best-dated house site from the Middle Bronze Age.

In-depth analysis of the series of dates associated with this house and its associated structures shows that this large house was constructed somewhere around 1402 BC, based on the comparison of the two dendrochronological dates from the central posts (see Table 9.2). The oldest tree used was cut down between 1426 and 1416 BC, whereas the fell date of the younger was between 1402 and 1390 BC (see Table 9.2). One of the two radiocarbon dates from house B perfectly overlaps this construction date with a calibrated age of 1500–1300 BC (GrN-28929;  $3120 \pm 30$  BP). The other, however, is somewhat younger (1390–1120 BC). Based on inspection of the features' sections, this post could be identified as a repair or consolidation of the eastern entrance. This single post is the only indication of

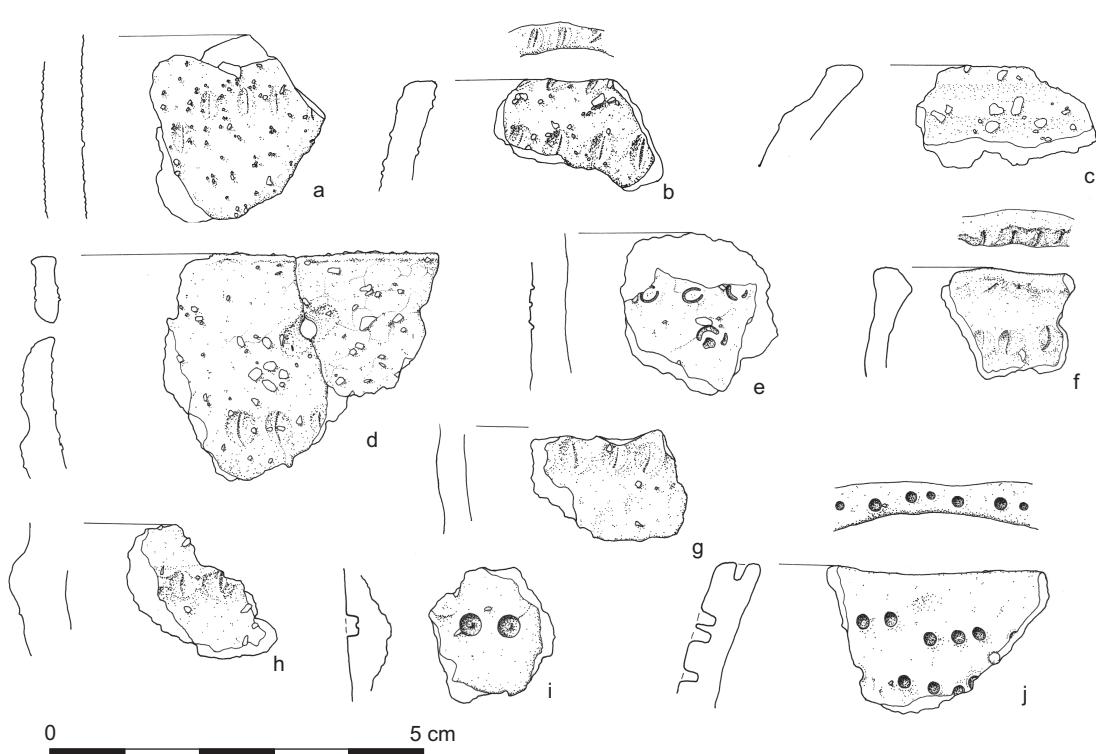


Fig. 9.7 Sample of decorated Middle Bronze Age ceramics, including finger(nail) impressions (a, b, d, f, g and h), with b and f showing examples with impressions underneath and on top of the rim, and impressions of (hollow) circles (e, i and j; drawings by R. Timmermans)

a later repair. None of the other postholes exhibit signs of later repair or rebuilding. The double wall lines do not per se indicate rebuilding, but in association with the double phases of the southern ditch, they may indicate this, assuming that the clay, which was used to seal the walls, came from this ditch. To the north of house B, the ditch presumably was not redug, but instead a watering pit was constructed at the former ditch location. It may have used the roofs watershed as an additional water source. Redug ditches are also present with the large house A, which also has double wall lines. A dendrochronological and a radiocarbon sample were taken from a find-rich fill of the watering pit to the north of house B. This dendrochronological sample produced a sharp date of c. 1345 BC, which is almost exactly in the middle of the 1430–1260 BC range of an associated  $^{14}\text{C}$ -sample (see tables 1 and 2). If the digging of this watering hole indeed made intentional use of the roofs watershed, this would mean that the house was still being used in 1345 BC, which is 58 years after the suggested date for the erection of the house. Another argument in support of this is the fact that hoof imprints were only found at the northern side of the pit, suggesting the presence of the house made it impossible for the cattle to approach the other side of the pit. The presence of the many granaries around house B corresponds to such a long house use-life. Only one of the five dates obtained from the wooden posts of some of the granaries forms an anomaly with this proposed use-life.

Structure 19, a large granary with nine posts, produced a dendrochronological date of 1489–1477 BC, which is more than 70 years older than the construction date of house B. This might mean that this granary belongs to an earlier phase of human activity at this plot. Another possibility is that old construction wood was reused, as granary 19 conforms in placement and orientation to the overall pattern of outbuildings around house B. There are four other granaries that are presumably not contemporaneous to the house, as their ground plans partly overlap with the house plan or they are situated immediately in front of one of the entrances. They therefore must be from an earlier or later phase. For only one granary, no. 34, an older age can be proven. One of the posts of house B disturbed the location of the southwestern post of this granary. It was not possible, unfortunately, to determine the chronological relation of the other granaries to house B. In any case, it is clear that the area on which house B was built, had been in use prior to its construction.

House D only yielded some charcoal fragments of willow from one of the posthole fills. One of these fragments produced a date between 1520–1310 BC (see Table 9.1). In addition, a piece of alder wood from an associated well (feature 66) was dated to 1520–1400 BC (see Table 9.1). These both overlap with the construction of house B, but based on the range of the dated well and posthole, house site D probably was older.

The well on the opposite side of the residual gully

associated with a suspected house site on the northern side of the gully (feature 244 near house site 4) produced an almost identical date (1520–1390 BC; Table 9.1) to the well associated with house D. This makes it probable that both houses were contemporaneous at a certain point in time.

House C did not yield any datable remains and only one associated watering pit (feature 8) produced charcoal remains of which a willow fragment was dated between 1410–1130 BC (Table 9.1). This date strongly overlaps with the younger dates from the house site B. House A could not be dated at all with the aid of direct dating methods.

## Material remains

It has already been stated above that the number of finds recovered during the most recent excavations is relatively low. Basically, two contexts yielded the majority of material. Most pottery, stones, and small bone fragments came from the area, where parts of the find layer had been preserved (see above). This find layer may represent the lower part or low-lying segment of a concentration of finds which may be associated with another house site that is chiefly situated outside the excavated area. The other context is formed by some of the rich fills in three of the watering pits. These appeared to contain an exceptional quantity of finds, which were relatively well preserved. Large pottery fragments, some complete animal bones, wood fragments and a few stone artefacts originate from these fills. The remainder of the material, usually low in quantity and small in size, came from all different sorts of contexts, including postholes, pits, ditches and small isolated find concentrations in the lower part of the vegetation horizon.

Except for some Iron Age and a few Neolithic sherds from distinct and isolated contexts, all pottery can be dated to the Middle Bronze Age. Most of this material is tempered with quartz gravel (between 1 and 14 mm in size) and crudely finished (Van Beek 2005, 75–79). Recurrent pot types include large jars and bucket shaped pots. Less than 1 % of the total number of sherds was decorated. Modes of decoration include fingernail and fingertip impressions and small impressed hollow circles, probably made by using hollow reeds or bird bones (Fig. 9.7; Van Beek 2005, 78–79).

Lithic material only forms a small segment of the material remains. This comes as no surprise since Middle Bronze Age flint artefacts are exceptionally rare, clearly showing that the use of flint is decreasing during this period. Other stone material is more abundant. All material was probably obtained from nearby gravel outcrops belonging to old channel bed deposits. The exact location(s) of stone procurement, however, remain unknown (Knippenberg and Jongste 2005, 83). Complete or broken quartz pebbles, probably obtained and broken to be used as pottery temper, are frequently encountered. In addition, many fire-cracked rock fragments of quartzite and sandstone, and more rarely granite, were identified as well. These rocks probably

were used as cooking stone or stones used in hearths. A very small number of tools or tool fragments was present among the material. One complete sandstone grinding stone and some quartzite and sandstone fragments with traces of abrading, point to grinding of substances or objects. In addition, a number of stones possessed traces of pitting, suggesting they were used as hammers.

Apart from the many post stumps and stake fragments, a lot of the wood recovered consists of wood-chips created during tree-felling and subsequent shaping of the posts. Among the posts and associated wood-chips, alder predominates, followed by oak. Among the stakes, 14 in total, willow accounts for 50% of the total, followed by alder and poplar. Only a single wooden artefact was identified. It is a complete pointed 'stick' with a length of 25 cm made of alder. Its function is unknown.

Pollen studies have shown that the vegetation around the site must have been rather open, with particularly the higher channel belt deposits covered by sparse forest. Alder is predominant in this wet landscape, but also oak and hazel occurred and in very small quantities beech, ash, lime and elm (Berendsen and Hoek 2005, 43–44). From this it is clear that the inhabitants chose what was available; alder and if possible the stronger oak wood. That oak was more rare than alder is suggested by pollen data. This is also indicated by the exhaustive use that the Zijderveld inhabitants made of oak wood. They split the oak trunks into planks, instead of using the complete trunks as posts, as they did with alder posts (Vermeeren 2005, 101–103).

The faunal remains show a dominance of cattle. More than 90 % in number and weight consists of cattle bones. Other identified species include sheep/goat (c. 1 %), pig (c. 1 %), dog (c. 1 %), horse (<1 %), dear (<1 %) and beaver (<1 %). The small quantities of the latter two species indicate that hunting was no vital element in the subsistence strategy, which is common for the Bronze Age (Clason 1999; Brinkkemper and Van Wijngaarden-Bakker 2005, 491–494). Overall, the sample of material culture recovered, fits into the general picture of Middle Bronze Age local communities (Fokkens 2005).

## The pastures and fields

The excavations in 2004 largely focussed on mapping the periphery of the Bronze Age habitation at Zijderveld. One of its main goals was to identify the fields used for crop cultivation and the pastures used for cattle herding, and the arrangement of these areas in relation to the house sites. The excavations of 1965–1971 already uncovered extensive areas of fencing without any structures (Theunissen and Hulst 1999b, 160, 169). Some of these were interpreted as farmyards based on the presence of many single stake fences and the nature of the encircled areas. Large areas, however, were seen as fields and pastures.

In the recent excavations, also a number of terrains could be identified as fields and pastures. These areas were largely

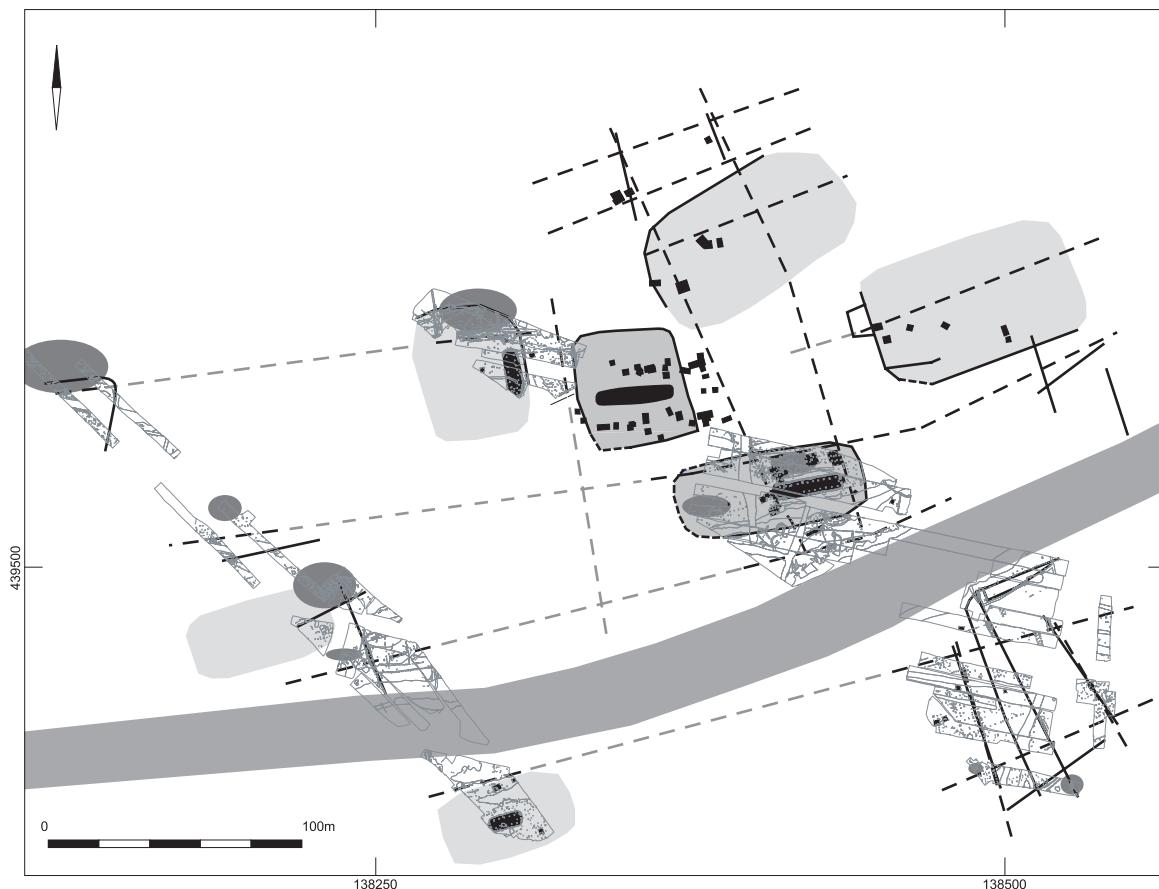


Fig. 9.8 Reconstructed model of fenced house site locations surrounding fenced pastures and fields.

Legend: a: Residual gully; b: Houses and granaries; c: Farmyards (definite/probable); d: Areas with cow hoof imprints; e: Single stake fences; f: Double stake fences

devoid of structures and large features, such as wells and watering pits. Furthermore, they were cross-cut by double stake types of fences or ditches.

Three main areas were identified, indicated as areas A-C in figure 8. Two are situated in relatively low-lying terrain, where a relatively thick layer of clayey floodbasin deposit overlies the sandy Zijderveld channel bed deposits. Interestingly in these areas ditches are common and occur along with fences, suggesting the area must have become relatively wet occasionally, alternated with dryer periods. The presence of many hoof imprints indicates that cattle must have grazed there. This would correspond with the general notion that the relatively wet fields were used as pastures.

Area B corresponds with a higher part in the terrain, due to underlying levee (and/or crevasse) deposits. Here, a number of double stake types of fences were identified. These were all part of the same field lay-out, which was in use during multiple phases as is evidenced by the presence of different parallel orientated fences next to each other.

Along with the fences, six small granaries of the four-post type are sparsely placed within this area. The number of identified hoof imprints is surprisingly small here. They are only found in the lower parts. Based on the presence

of granaries and the moderate elevation, this area was probably mainly used for crop cultivation, in which the granaries may have functioned as storage buildings for the harvested crop or for the sowing grain.

Unfortunately, the analysis of botanical remains did not produce additional evidence for this interpretation. A very small number of charred seeds from cultivated plants were found in a number of samples from a limited range of features; the watering holes and wells (Bakels 2005, 114–116). None of the granary posthole fills did produce charred cultivated remains.

### The size of the settlement site

When viewing the results of all excavations, it is clear that the limits of the cultural landscape have not been reached within the excavation limits. Evidently, large parts have already been destroyed by the A2 motorway. Based on the prospective coring campaigns, the site in any case extends in southwestern direction towards the village of Zijderveld (Haarhuis 1998; Vis 2003). This was also indicated by the presence of a well-preserved find-rich vegetation horizon at this part of the site. This part of the site corresponds

with a local rise of the sandy levee deposits as indicated by the coring results.

The area between the present village of Zijderveld and the excavation has great archaeological potential. Analysis of laser-altimetry maps indicates that the higher sandy levee deposits of the Zijderveld river continue in this direction (Knippenberg and Jongste 2005, 15). The discovery of a Neolithic flint axe fragment from this area supports its assumed archaeological significance.

The dense concentration of features and the possible presence of two additional farmyards in the northern parts of the excavation are strong evidence that a major part of the settlement site was - and still is - situated towards the northeast of the excavated area (see Fig. 9.8). As this area has been insufficiently investigated, the extent of the site in this northern direction remains unknown. Moving towards the west, it appears that the prehistoric habitation surface is slowly dipping and that only pastures were situated there. This may be an indication that we are approaching the limits of the cultural landscape in this direction.

In eastern direction, the archaeological evidence is similar to the southern and northern sides. Features and structures are still present. We know that towards the east one enters the floodbasin region between the Zijderveld and Schoonrewoerd river channels (Berendsen and Stouthamer 2001, Addendum 1). Generally these regions are low-lying and may therefore have been unsuitable for habitation. Van Zijverden, however, identified crevasse deposits within this region (Van Zijverden 2003; see also Berendsen and Hoek 2005, 23). As archaeological work at several other sites has shown, these deposits – like the river channel belts and river levees – were favored places for prehistoric habitation (Van Dinter and Van Zijverden 2002).

## Concluding remarks

Not knowing the site's exact size and the overall number of Bronze Age houses that were once constructed at Zijderveld, hampers our view on the development and duration of occupation at this settlement. At present, the radiocarbon and dendrochronological dates, as well as the dating of the residual gully, places all Middle Bronze Age habitation somewhere between 1500 and 1340 - or at latest - 1250 BC. During this period, we know that minimally four to possibly seven house sites have been constructed at Zijderveld. Although the dating of the houses in many cases suggests contemporaneity, it remains hard to prove which farms were simultaneously in function.

Also, the life span of Bronze Age longhouses is unclear. Normally, a life span of 25–30 years is claimed (IJzereef and Van Regteren-Altena 1991, 74–75). The house repairs and dating of the watering hole at house site B indicate a much longer, up to 60 years, period of use. When 60 years is considered as the life span for the two large houses, additional support is given for the simultaneous use of houses at Zijderveld. In this sense, the Middle Bronze Age

occupation at Zijderveld can be placed somewhere between the West-Frisian model of many contemporaneous houses, clustered in a small area on the one extreme (Bakker *et al.* 1977; IJzereef and Van Regteren-Altena 1991, 65–68) and the model of single, wandering farmsteads reconstructed for southern Dutch coversand plateaus on the other end (Fokkens 1991, 96–101, 107).

It is clear from the house locations, orientations and feature distributions that the construction of new houses occurred with respect to other - be it older or contemporaneous - house sites, as nowhere farmhouses have been rebuilt on house sites of other houses.

The area, however, in which this occurred, remained small. In this respect it is justified to speak of the Zijderveld settlement as a clustered conglomeration of houses, in which people stayed for a few centuries. Also the pattern of fields and pastures was kept the same throughout the entire Middle Bronze Age habitation at Zijderveld, suggesting strong continuity in field lay-out and farming tradition (cf. Arnoldussen and Fontijn 2006; Bradley 2002, 49–81).

Within this little hamlet people were not isolated but stood in contact with surrounding hamlets. The building of the house and granaries was a communal enterprise, possibly involving people from other settlements. This communal house building may to some degree have been the mechanism by which the strong tradition in house building was kept. This tradition appeared and remained the same during the Middle Bronze Age resulting in the presence of highly uniform house plans in an extended region.

As a final remark, it needs to be stressed that the Zijderveld site is an exceptionally well-preserved Middle Bronze Age habitation site, which provides detailed data on house plans, house building, farmyards and field layout. With regard to these subjects it has proven to increase our understanding of Bronze Age farming life in the Netherlands. Although there are better preserved Bronze Age habitation sites in the Dutch river area, the relatively short duration of Bronze Age occupation at Zijderveld with limited remains from other periods enable us to more precisely than elsewhere to investigate house construction and the lay-out of farmyards and surrounding fields. Therefore, the unstudied areas surrounding the excavated terrains must remain protected by law and future additional archaeological work is strongly recommended if new construction work might take place. This future work should focus on finding the extends of the inhabited area as well as the surrounding fields and pastures.

## Notes

1 Including the Tienhoven-Kortenhoeven, Gorkem-Arkel and Altena fluvial systems (Berendsen and Stouthamer 2001, 189, 201, 236, Addendum 1; Berendsen and Hoek 2005, 23).

2 E.g. Wijk bij Duurstede (Hessing 1991, 44); Hijkerveld (Harsema 1991, 24); Loon op Zand (Roymans and Hiddink

1991, 113); Oss (Fokkens 1991, 98); cf. Dodewaard and Wijk Bij Duurstede (Theunissen and Hulst 1999a, 140); Eigenblok (Hielkema *et al.* 2002a, 84, 100, 129, 150); De Bogen (Hielkema *et al.* 2002b).

3 Type 1b consists of a single row of stakes set *c.* 1.80 m apart. This type only occurs once in Zijderveld (Theunissen and Hulst 1999b, 168).

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# 10 Bronze age settlements in Tiel-Medel

*Janneke B. Hielkema and Tom Hamburg*

## Introduction

North of the city Tiel, in the Dutch river area between the Rijn and the Waal, a business park is being developed by Industrieschap Medel. The business park encompasses a large area (c. 210 ha), between the river Linge, the Amsterdam-Rijn canal and the A15 motorway (Fig. 10.10.1). Before the development of this area, an archaeological survey combined with a coring campaign was carried out in order to examine the archaeological potential of this area (Heunks 2002a and 2002b). This research resulted in the discovery of five Late Neolithic and Bronze Age sites and a number of Roman settlements. The industrial development of the area would disturb most of these sites. Therefore eventually all five prehistoric sites were selected for excavation.

Starting in 2001, excavations have been carried out in this area under the archaeological direction of Hazenberg Archeologie Leiden. Two Bronze Age sites, site 1 (Hielkema 2002 and 2003) and 5 (Hielkema 2004 and Ufkes 2005), were excavated by ARC bv (Archaeological Research & Consultancy) and another large Bronze Age site, site 8, was excavated in the summer of 2005 by Archol bv (Hoof and Jongste 2007; Fig. 10.1). Although the results of the latter are not yet fully available, some preliminary results will be presented. This article will deal with the Bronze Age occupation of this part of the Dutch river area, starting in the Early Bronze Age and continuing into the Late Bronze Age.

## Landscape

The research area of Tiel-Medel is situated in the Rhine

and Meuse delta in what is known as the Betuwe district. This part of the Dutch river area is known for its complex system of Holocene meander belts, crevasse splay deposits and floodplains (Berendsen and Stouthamer 2001). This has always been a landscape in motion, with rivers shifting their riverbeds from time to time. Occasionally, during periods of high water, the levees collapsed and crevasses formed, leaving their silty deposits in the floodplains. These silty deposits may be several decimeters thick, forming high ridges or plateaus that could be used as settlement locations.

At Tiel-Medel, a complex, stacked landscape was formed by levee-, crevasse- and floodbasin deposits of various fluvial systems. The Ochten river system is the oldest in the research area. This system was active during the Neolithic and the Bronze Age, between c. 3300 BC and 1000 BC (Berendsen and Stouthamer 2001, 224). Sandy levee deposits of this river system are found in the central zone. The Zoelen (active between 3000 BC and 1800 BC; cf. Van Zijverden in prep.) and Ommeren (active between 4370 BC and c. 3785; *ibid.*) systems also left their levee- and crevasse deposits in the northern part of the research area. Because these systems were active during the same period, it is difficult to determine whether deposits belong to one system or the other.

In prehistory this must have been an attractive landscape, with the possibility to grow crops on the meander belt and crevasse splay deposits. In the floodplains cattle could graze, whereas the marshes and fens provided for game and fowl to be hunted and fish to be caught. Nearby rivers could be used as means of contact and transportation to obtain flint, stone and metal objects.

In the top of the sandy levee- and crevasse splay deposits a (dark) grey vegetation horizon was formed

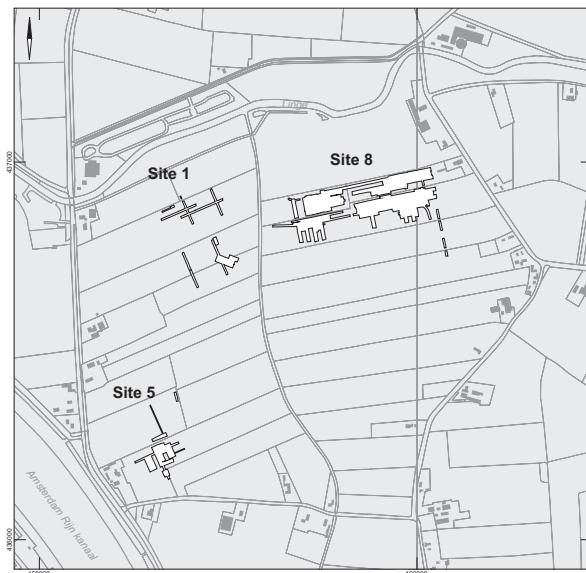


Fig. 10.1 Overview of business park and excavated sites

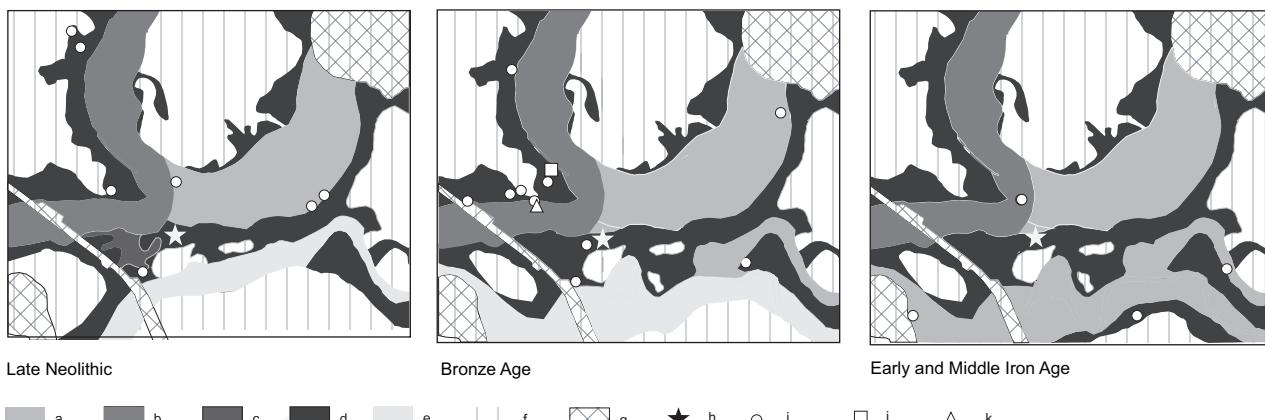


Fig. 10.2 Changing landscape.

Legend: a: Inactive meanderbelt; b: Inactive meanderbelt; c: Crevasse splay deposits; d: Levee deposits; e: Active meanderbelt; f: Floodbasin; g: Modern constructions, h: Tiel Medel sites, i: Site Locations, j: Deposits of metal objects, k: Grave

after the Zoelen, Ommeren and Ochten rivers had silted up. The top of this vegetation horizon represents the original surface during the Late Neolithic and Bronze Age periods. Settlement debris (sherds, stones, bones and other materials) was embedded in the top of this cultural layer during occupation, as it was trampled into the soft, clayey soil forming so-called 'find layers'. These find layers can be prospected during coring campaigns and are seen as indications for house sites or special activity sites (e.g. flintworking, refuse dump, hunting sites).

## Settlement sites

Although small amounts of Late Neolithic finds have been found on most of the excavated sites, the oldest features

date to the Early Bronze Age (Fig. 10.1: site 5). Two other sites (Fig. 10.1: site 1 and 8) have been dated to the Middle Bronze Age; the latter also has a Late Bronze Age phase.

Site 5 is located in the centre of the investigated area, where it is situated on levee deposits of the Ochten river system, close to a floodplain. A dark grey layer of clay covers the finds layer, which was situated at almost 1 m below the present-day surface. This dark grey layer was formed under aquatic circumstances. The absence of younger find material indicates that this layer was presumably formed during or shortly after the occupation had ended.

The other two sites are located in the northern part of the investigated area, situated on a higher sandy ridge in comparison to site 5. On both sites a dark grey, sandy clay finds layer has been identified. All three sites will be

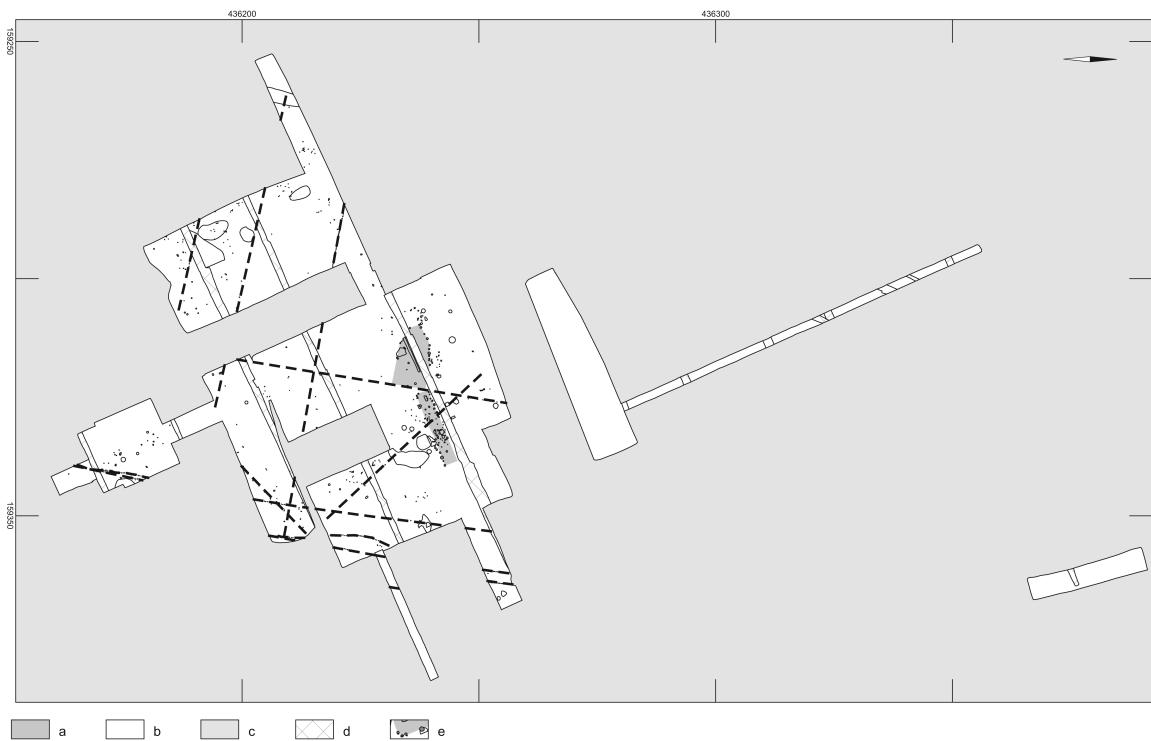


Fig. 10.3 Overview of site 5. Legend: a: House structure area; b: Excavated area; c: Non-excavated area; d: Recent disturbance; e: House structure with postholes

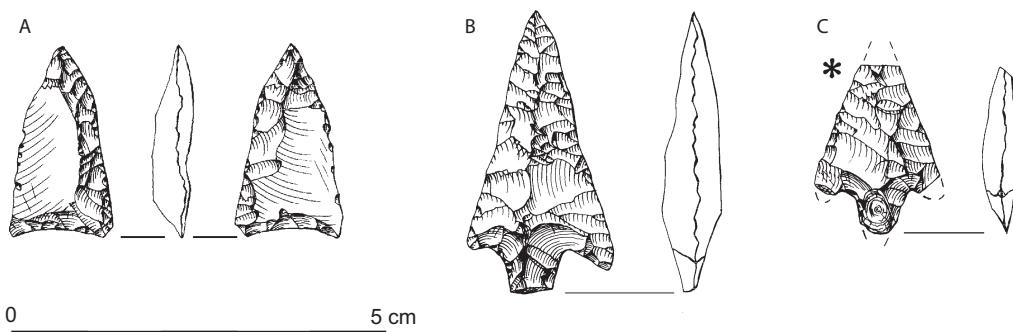


Fig. 10.4: Arrowheads from site 5

discussed below in chronological order, with a description of the main structures, special features and remarkable finds.

#### Early Bronze Age, site 5, Oude Weiden

In the spring of 2003 some test trenches were dug in order to examine the size, nature, age and state of preservation of this site. The site was covered with a c. 80 cm thick layer of clay. Underneath this layer, a vegetation horizon with debris in it was found overlying the features. This finds layer was 15–20 cm thick. During the excavation of the test trenches, 1 m<sup>2</sup> squares of the finds layer were excavated using a trowel, which is a very accurate, but labour intensive way of excavating. During this research a considerable amount of pottery, animal bones, flint tools

and burnt loam were found in combination with postholes and pits. Typological aspects of these finds dated the site to the Early Bronze Age.

This very time consuming method of finds collection was only carried out in the initial testing phase. Later a larger area at this site was excavated using a different method of sampling (Fig. 10.3). The finds layer was removed in thin layers with the aid of a mechanical digger. Finds were collected in 5 x 5 m squares. Alas due to the difference in methods used during the initial and the final phase of excavation it is alas almost impossible to construct representative spatial distribution maps of the finds.

Typical Early Bronze Age pottery on this site consists of Barbed Wire-stamp decorated pottery and larger Beaker pots (N = 1698). Also, a small amount of Bell Beaker sherds (17) from the Late Neolithic was found. The Early Bronze

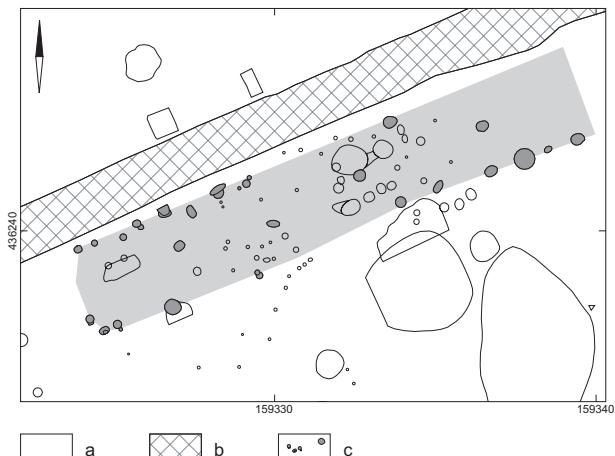


Fig. 10.5 Possible house plan at site 5

Legend: a: Non-excavated area; b: Recent disturbance; c: House structure with postholes

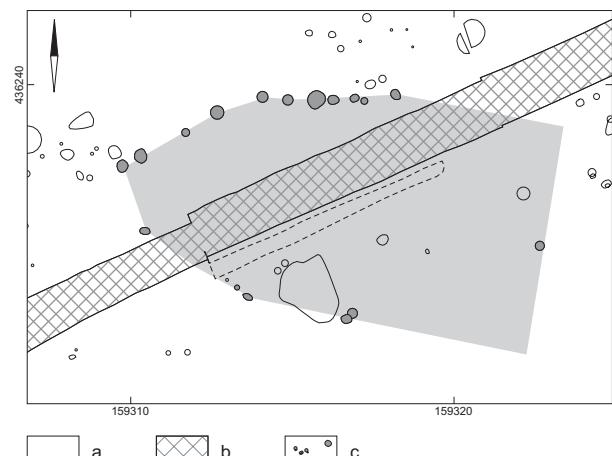


Fig. 10.6 Possible house plan at site 5

species	numbers
Deer	3
Red deer	13
Roe deer	1
Cattle	367
Sheep/goat	129
Pig	61
Total	574

Table 10.1 Bone material from the Early Bronze Age, site 5

Age pottery has a typical temper made of crushed white quarts. Other types of stone are present on the site, but apparently a selection was made and only the white ones were used as pottery temper. A large stone, found close to the farm, showed traces of use that could be ascribed to the crushing of stones, possibly in relation to pottery production.

Three flint arrowheads of different types were found in the test trenches (Fig. 10.4). The hollow base arrowhead dates to the Early Bronze Age, the barb-and-tang arrowheads are associated with the Bell Beaker period and they can be dated in the Late Neolithic or Early Bronze Age. Other flint material recovered included scrapers and cores.

A small amount of bones of deer, red deer and roe deer indicate hunting. Not only parts of the antler were found, but also parts of the long bones. Most of the other bone material was of cattle, sheep/goat and pig (Table 10.1). The samples that were taken from a number of features contained no botanical material that could further inform us on subsistence strategies.

During the post excavation analysis, two possible structures were constructed from the numerous features. These did not show a regular post-placement, but short rows of posts may have indicated walls or central posts. The principal building may have been a small farmhouse.

In that case only the roof-bearing posts were recovered forming a truss of approximately 3 m wide and 16 m long (Fig. 10.5). The postholes in the central section may have indicated the place of roof-bearing posts; the structure then would have been two-aisled. The distances between the posts in rows that may have constituted the walls vary. No features were found that indicate the actual structure of the walls.

The irregularity of the house can be partially explained by the way it was discovered. Most of the postholes of the northern row were already found in the first (test trench) phase and consequently these were not sectioned to determine the depth and shape of the postholes. In the following second phase excavation the documented level was dug approximately 10 cm deeper and some of the postholes were no longer visible. This means that the remaining depth of those postholes was less than 10 cm.

Pieces of burnt clay, some bearing impressions of wattle work, were found in the find layer surrounding the structure, suggesting that the walls were made from wattle and daub. It is not clear where the entrances of this farm were located. An interesting find was recovered from a pit that was situated between the posts that made up the southern row. In this pit 924 potsherds of a single large Beaker pot (Riesenbecher) were found. Due to its heavy

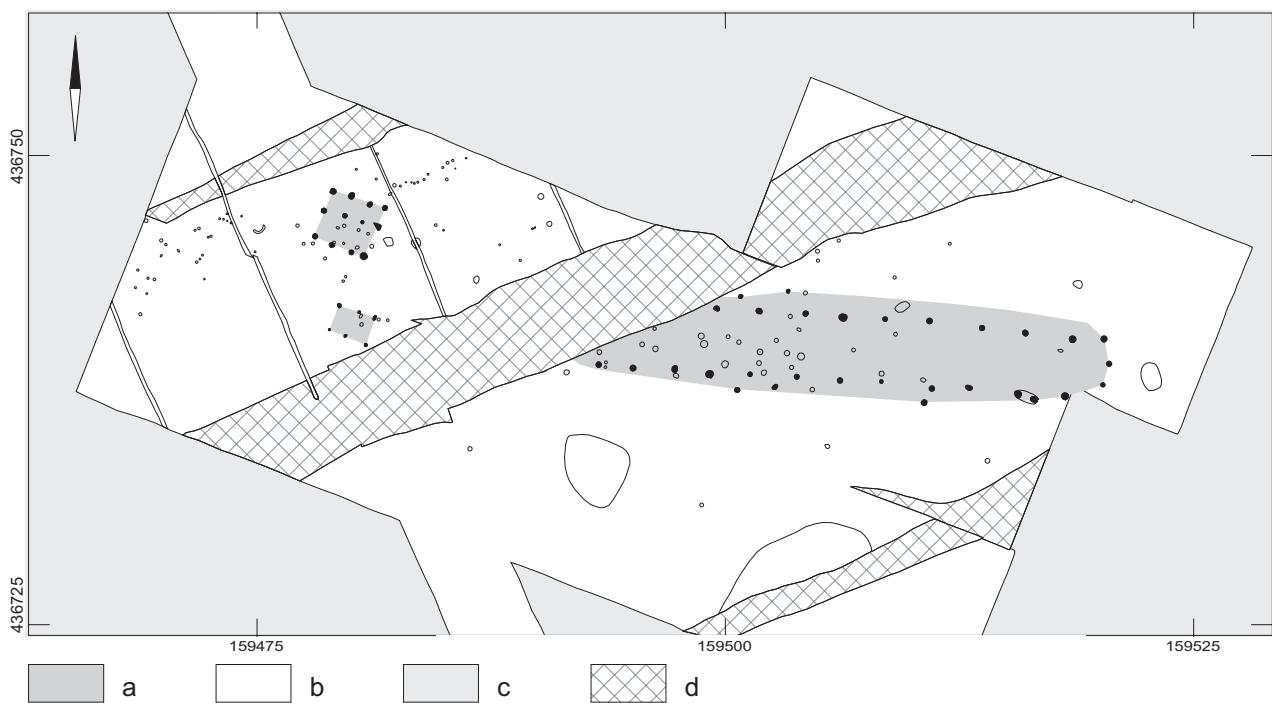


Fig. 10.7 Overview of the housesite at site 1. Legend: a: structures (postholes indicated in black); b: Excavated area; c: Not excavated area; d: Recent disturbance

fragmentation it could not be observed if the pot was treated a special manner, which could indicate a ritual deposit. In the same pit also 197 pieces of animal bone and some stones were found.

In summary this particular location definitely was used for settlement in the Early Bronze Age (somewhere between 2000 and 1800 BC). Whether the proposed structure was indeed a house, remains an open question. So far there are hardly comparable finds, although Meijlink and Kranendonk (Meijlink and Kranendonk 2002; Meijlink, this volume) claimed to have discovered no less than six Early Bronze Age houses at that site. One of those confers in size, but its structure is much more regular.

Close to this structure another possible building was reconstructed (Fig. 10.6). The interpretation of this structure is based on a number of irregularly placed postholes and the presence of pieces of burnt clay. The structure itself appears incomplete with a large number of missing postholes. Another possible explanation could be that the features represent an unroofed structure such as an enclosure for sheep or cows.

Several remnants of fences, consisting of small post- and stakeholes, have been identified at this site. These can be split into two main types; the first consists of a single row of small posts, which are placed close together. The second type is made of pairs of small posts at a larger interval (cf. Theunissen 1999, 167–169). Some of the fences have the same orientation as the first house and may be related to the house. Others have different orientations and were

visible on a higher level than the house, which means that they probably are of younger date.

### The Middle Bronze Age, site 1, Lingewei

Site 1 is located *c.* 750 m north of site 5, south of the Linge, situated on crevasse- and levee deposits that are attributed to the Zoelen system. Here, a single house site was excavated (Fig. 10.7). It was not until after the excavation of site 8 (see below), that it was clear that site 1 was once part of a larger complex of Middle Bronze Age house sites. On site 1 a house site of approximately 30 x 50 m with a large farm, two small outbuildings, fences and two wells was excavated. The boundaries of the house site are based on the distribution of finds and features. The site is dated to the Middle Bronze Age by pottery typology and house type. There are no radiocarbon dates available for this house site.

In the southern part of the excavated area, a large farmhouse was found (Fig. 10.7). It is an east-west orientated, three-aisled structure. A modern ditch cuts across the west end of the house, but a remaining length of 27 m was observed. The house plan consists of two parallel rows of postholes with a distance of 3.3 m between the rows. The distance between posts in a row is 2.3 m. Some other posts were recognised, some of which could have formed part of the wall construction. They are positioned approximately 1 m outside the rows of postholes. These outer posts are placed in between the central posts, forming

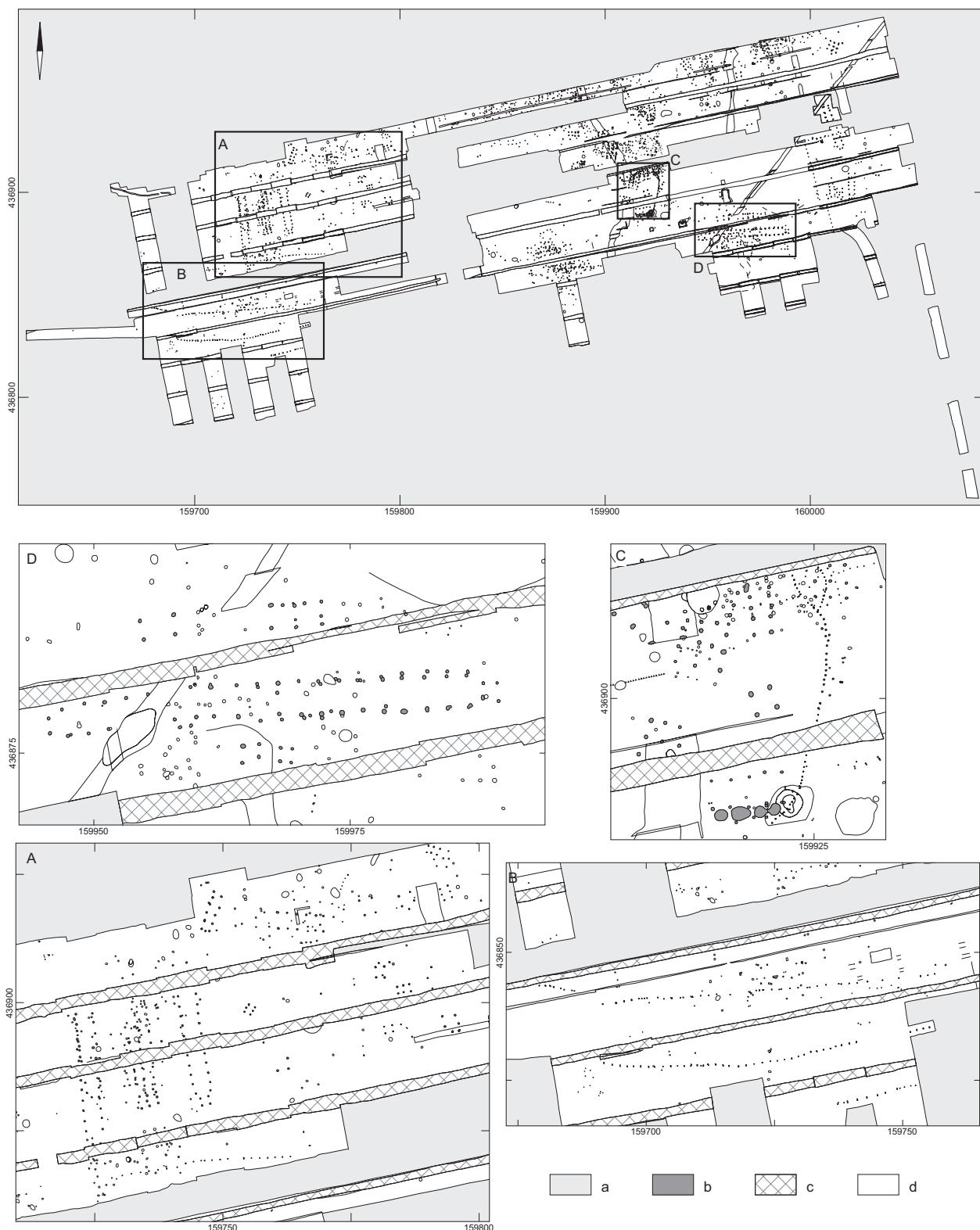


Fig. 10.8 Overview of site 8. Legend: a: Not-excavated area; b: Postholes belonging to structure; c: Recent disturbance; d: Excavated area



Fig. 10.9 A: Ladder; B: Notched log ladder

triangles. Similar house plans were found in Blerick (Theunissen 1999, 121) and Eigenblok site 4 (Hielkema *et al.* 2002, 120). Usually wall posts are not as deep as the roof-supporting posts, which is also the case on site 1. This explains why not all of the wall posts have been rediscovered.

West of the house two outbuildings, presumably granaries were present. The first consists of two rows of three postholes, the other one consists of three rows of four posts. Samples taken from the posts yielded no botanical remains. To the other side of the house, two wells were found, lying close together (Fig. 10.7). The wells did not have any kind of lining. It seems that the clay soil was strong enough to keep the wells open for a long time. The wells were dug into a water carrying sandy layer at a depth of 2 m below the surface. To the west of the farmhouse a small fence was present, indicating the borders of the house site. The orientation of this fence is at a right angle to the orientation of the house and the location of the fence corresponds with the finds distribution.

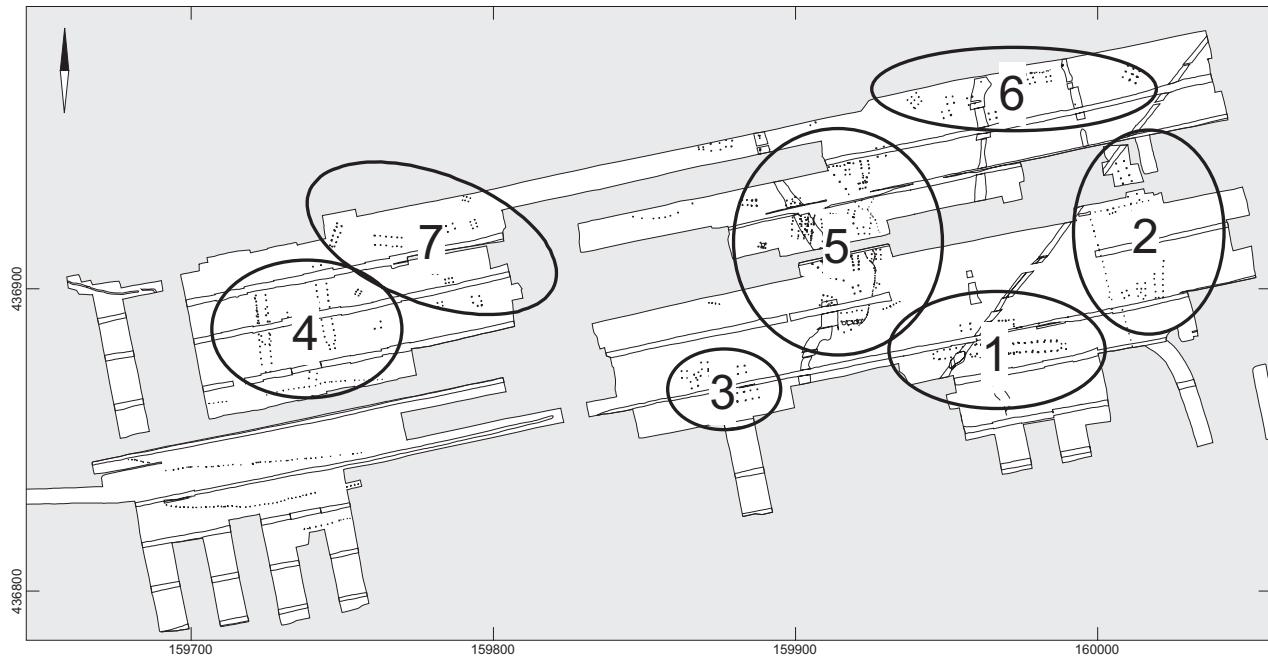
The test trenches on this site extended to the north of the house site. In this area, the finds layer was destroyed by incorporation into the modern topsoil. Nonetheless, some features were still present, among which two parallel ditches and a small number of postholes. The parallel ditches could be followed, with some intervals, over 80 m. They contained pottery dating to the Early and Middle Bronze Age. The postholes could not be dated.

A 5–10 cm thick finds layer covered the farmstead. At this location finds were collected in 1 m<sup>2</sup> squares. The spatial distribution of debris collected from the finds layer suggests a possible functional separation in the house, with a concentration of finds in the western part and few finds in the eastern part. It is uncertain whether a concentration of

finds indicates the living area or the stable. At Eigenblok the northern part of the house on site 5 had a concentration of finds, the southern half contained only a small number of finds. Here it is suggested that the finds concentration indicates the living area, the 'empty' space represents the stable. However, this functional subdivision of the house could not be confirmed by phosphate analysis (Hielkema *et al.* 2002, 132). A concentration of debris south of the house possibly indicates an entrance. Regular cleaning of the house could have caused an accumulation of debris in this area.

The finds consist mainly of small fragments of pottery, flint and animal bones (Hielkema 2003, 31–82). Four fragments of Bell Beaker pottery were found and two sherds of Barbed Wire Beaker pottery. Forty-one potsherds can be ascribed with certainty to the Middle Bronze Age. The largest part of the pottery cannot be dated, due to the high degree of fragmentation and the very low percentage (1.1%) of decorated pottery. It is very likely that these potsherds belong to the Middle Bronze Age. This assumption is based on the fact that Early Bronze Age pottery is decorated over a large part of the surface, whereas Middle Bronze Age pottery is only decorated on a small part.

Flint material includes scrapers, flakes and cores (268 pieces in all, of which 214 are worked). Faunal remains are very fragmentary and badly preserved. Most of the bones belong to cattle (N=442, 76%) sheep or goat (N=56, 10%) and pigs (N=74, 13%). Red deer, dog, and horse were only encountered in very small numbers. A remarkable find was the presence of a worked bovine scapula, which was used as a chopping board. This object was found in a well. Comparable objects were found in Lienden (Buitenhuis 2002, 215–217).



Housesite number	number of houseplans	orientation	Sheds	wells	Pits	fence	date
1	2	e-w	4	x	x	-	Middle Bronze Age-B
2	2	n-s	4	x	x	-	Middle Bronze Age-B
3	1	e-w	4	x	x	-	Late Bronze Age
4	3	n-s	5	x	x	-	Middle Bronze Age-B
5	3	various	23	x	x	x	Middle Bronze Age-B / Late Bronze Age
6	none	none	8	-	x	x	Late Bronze Age
7	2	nw-se and ne-sw	10	-	-	-	Middle Bronze Age-B / Late Bronze Age

Fig. 10.10 Location of identified housesites at site 8 and their characteristics

### Middle and Late Bronze Age, site 8, Bredestee

Site 8 is located on levee deposits of the Ommersen and Zoelen fluvial systems in the northeastern part of the terrain. Close to 3 ha were excavated in the early summer of 2005 (Fig. 10.8). The ceramics recovered here indicate that this area was used both during the Middle as well as the Late Bronze Age.

The site has yielded a total of 13 house plans distributed over the whole excavated area. The house plans show two main orientations: east-west and north-south. The lengths of the houses range between 8 to 30 meters. The shorter ones can possibly be dated to the Late Bronze Age and the larger ones to the Middle Bronze Age (Fokkens and Jansen 2002, 1 ff.)

Besides these house plans roughly 68 smaller structures (sheds) have been identified. These sheds, measuring mostly 3 by 2 meters and made up out of 4 to 9 postholes, are found distributed over the whole excavated area, mostly in the vicinity of the houses.

In the vicinity of the houses and sheds nine wells, a number of pits filled with refuse and parts of fences have been identified. Two wells have yielded spectacular finds in the shape of a notched log ladder and an other ladder consisting of a pointed post with one of the side branches showing signs of abrasion on the top (Fig. 10.9).

The pits show an even distribution over the excavated area, although a small cluster of four pits is located next to one of the smaller house structures, which could be radiocarbon dated to the LBA. These pits have yielded an unusually high concentration of Late Bronze Age pottery. Based on the distribution of the houses and associated features (wells, pits and fences) seven house sites have been identified (Fig. 10.10).

One of the most spectacular finds of the sites is a Late Bronze Age socketed axe (Fig. 10.11) with face arches, 'wings' and three neck ribs (in Butler's classification AXT: AWiNr3, Butler and Steegstra 2005/2006; Fontijn, pers. comm.). The axe was found in the top of the find layer in clear settlement context. Bronze objects, and especially

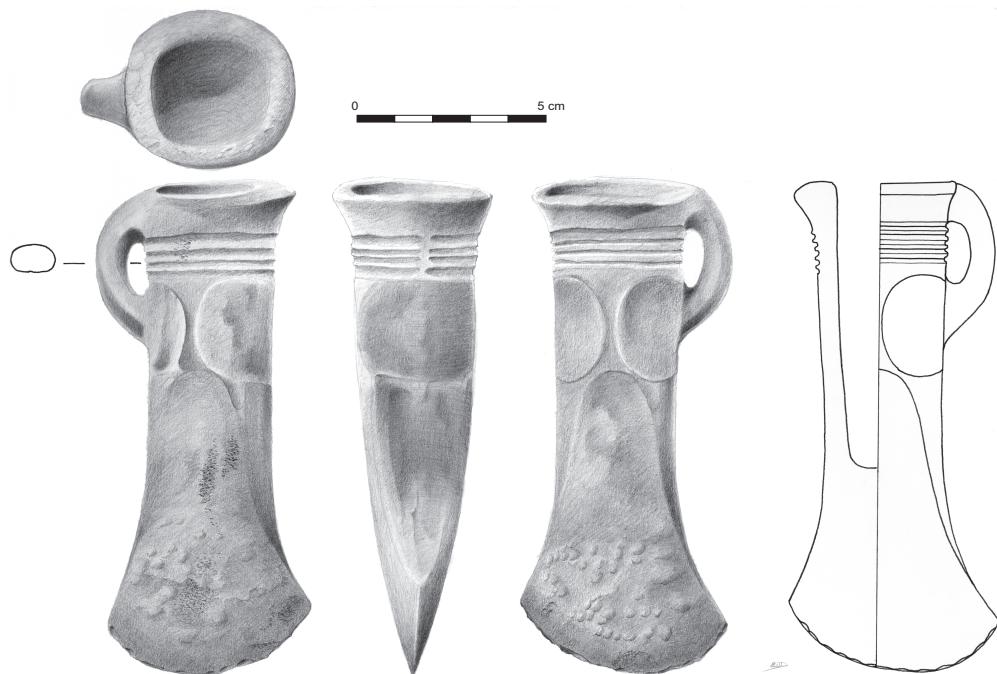


Fig. 10.11 Late Bronze Age socketed axe (drawing E. van Driel (FAL)

axes are rarely found in settlements, but occur frequently in bogs and rivers as ritual depositions (Fontijn 2002, 374).

## Discussion

The earliest remains at Tiel-Medel have been dated to the Late Neolithic period. This is based on a small number of Bell Beaker sherds found at site 1 en 5. Features or structures associated with this Neolithic material are missing. The small number of finds is not enough to assume the presence of a permanently inhabited site. It is therefore more likely that during this period the region was used for hunting or other temporary activities.

The Early Bronze Age is represented by a house site found at site 5, with a possible house associated with a number of fences. A layer with occupation debris surrounds the house. The pottery on this site dates to the Late Neolithic and the Early Bronze Age. The Early Bronze Age pottery was only found in the vicinity of the house. Other finds near the house were loom weights, flint tools and bones of domestic animals. This indicates that site 5 was a (small) farm site.

Although the nearby stream ridge and crevasse deposits were suitable for growing crops, botanical research has not provided evidence for agriculture. This is probably due to the very limited preservation conditions for organic material. The dark grey layer covering the site indicates an increasing influence of water on this location, possibly resulting in the abandonment of the site during the Early Bronze Age. Large pieces of burnt loam with imprints of branches might indicate that a fire destroyed the house.

On site 1 a small amount of Early Bronze Age pottery was found. None of the features could be assigned to this period. The activities on this site during this period remain unclear, but do not seem to have a permanent character.

The Middle and Late Bronze Age are represented by a large number of house sites both on site 1 and 8. The structure on site 1 can be seen as part of a large cluster found on site 8. Both sites are located on crevasse and levee deposits. The houses are three-aisled and have the same orientation. It is not yet clear how many houses on site 8 belong to the Middle Bronze Age(-B). In the debris layers surrounding the houses, little decorated pottery was found, as were pieces of animal bones, flint and other stone tools. The house sites consist of a single farm with granaries, pits and fences. Large areas outside the house sites were incorporated into a field system. The fields were surrounded by small fences. The fences on site 5 have the same orientation as the ditches on site 1 and possibly belong to the same system. The economy was based on agriculture and cattle breeding. Cows were most important, and to a lesser degree sheep and pigs. Some of the farmsteads co-existed. It is possible that the house site from site 1 was occupied at the same time as one or several of the house sites of site 8.

In this part of the Dutch river area, several other Bronze Age sites have been excavated. Due to the nature of the fluvial systems that shaped this part of the river area, the available space for habitation and farming was restricted by the landscape (Jongste and Van Wijngaarden 2002, 605). Usually, settlements stayed in the same location for some generations (Fokkens 2005, 361).

It seems that within Tiel-Medel a group of house sites

existed in the Bronze Age, similar to other nearby sites from this period, e.g. at de Bogen (Meijlink, this volume; Schoneveld and Gehasse 2001). These groups lived in comparable circumstances. They preferred to live on the slightly higher crevasse or levee deposits, with a river nearby. They built the same kind of houses, and used the same types of pottery. On some sites they rebuilt their houses on the same location, on other sites the houses moved from one place to another. The rivers offered the opportunity to maintain contacts over larger distances.

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# 11 The Bronze Age cultural landscape of De Bogen

*Bernard Meijlink*

## Introduction

In the context of the construction of a railroad connection between Rotterdam and the Dutch-German border - the so-called 'Betuweroute' - a series of excavations took place. Near Meteren, a village in the community Geldermalsen, sites were uncovered dating to the Late Neolithic, the Early Bronze Age and the Middle Bronze Age-A and -B (Table 11.1). The excavations took place between 1997 and 1999 and were performed on two locations; the location Voetakker (Fig. 11.1: sites 28-1/28-4) and the location De Bogen (Fig. 11.1: sites 29, 30 and 45). The results have been published in full in 2002 (Meijlink and Kranendonk 2002) and in this article I will only present an abstract of the results focussing on the house plans, the farmsteads, burial remains and the settlement patterns. A chronological order of the various house plans, farmsteads and burial phases is proposed and an attempt is made to reconstruct patterns of house replacement within the settlement during the various periods.

Before I continue, a few remarks have to be made about the structure of the sites and on the methodology. The locations selected for excavation, indicated here as sites, were all discovered by coring. This is possible because the house sites are characterised by vegetation horizons that contain large concentrations of prehistoric debris. The most important concentrations of prehistoric debris have been delimited by coring and test trenches and some were singled out for excavation.

In the excavations large amounts of pottery were found which gave a first indication of the time depth involved: about half could be dated to the Late Neolithic, the Early Bronze Age and the Middle Bronze Age. The other half clearly belonged to either of these periods, but lacked

distinctive features to allow a more precise dating (Table 11.1).

At almost every site a very large amount of features, postholes, pits and wells, but also many stakeholes were present in and underneath the vegetation layers. A clear stratigraphy lacked however. The vegetation layer contained features from about 1000 years of habitation of which only a few could be dated based on diagnostic finds. Therefore it has been very difficult, and frequently impossible, to assign features to a particular habitation period. As a consequence the phasing of the reconstructed house plans and farmsteads was also problematic.

Due to their well recognisable layout a large number of the three-aisled house plans of the Middle Bronze Age were discovered in the field. Almost an equal number was reconstructed during the post-excavation analyses. For all of the sites, 25 three-aisled house plans were distinguished. Of the house plans that have been dated to the Late Neolithic and Early Bronze Age none was recognised in the field, they are all reconstructed afterwards. Three of these, possibly six, date to the Late Neolithic and nine to the Early Bronze Age. Apart from the houses almost 60 plans of storage huts ('spiekers') - almost without exception consisting out of four postholes - were (re)constructed.

## The prehistoric landscape

The sites were located on an old system of crevasses in a large river basin area between the rivers Rhine and Meuse (Van Zijverden 2002; Fig. 11.1). These crevasse sediments exist of sandy clays originating from breakthroughs in riverbanks belonging to a system of rivers, which lie east and north of the sites. This river system was active before

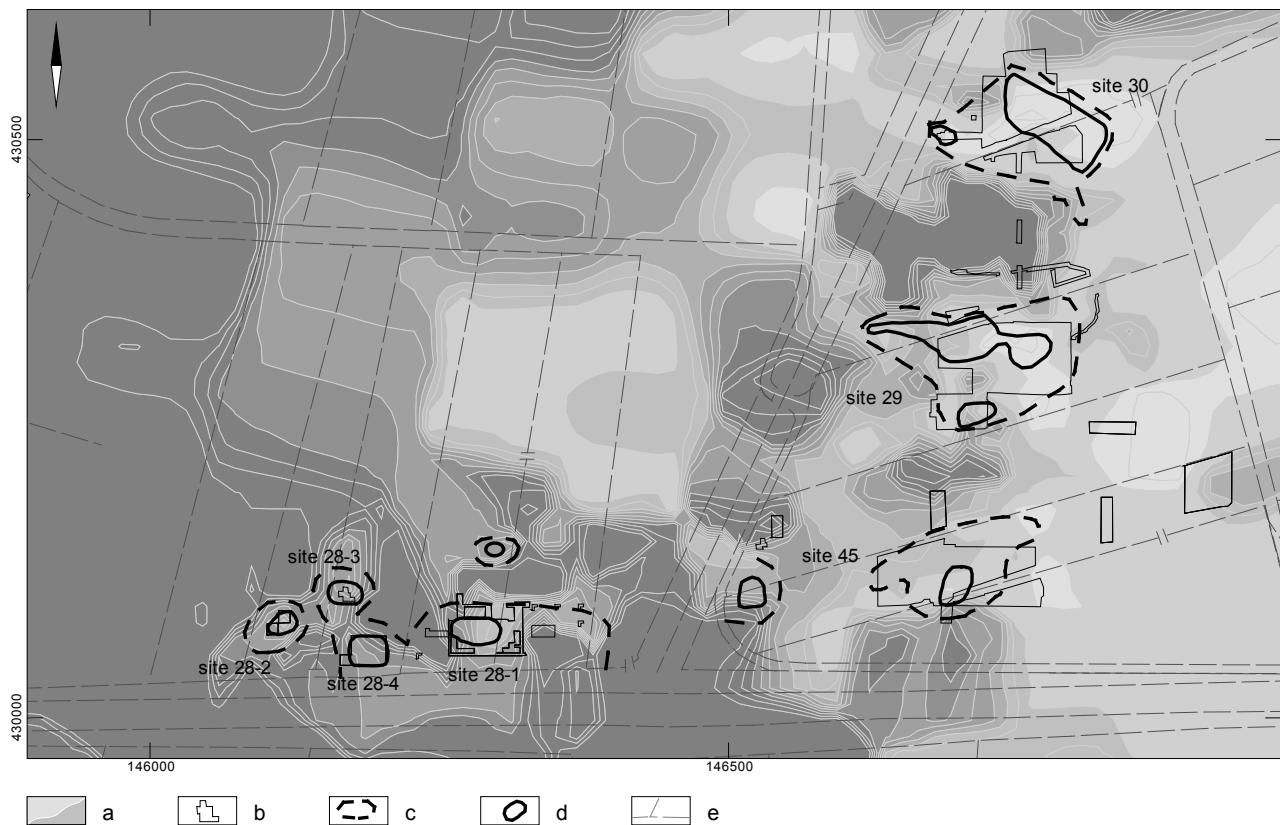


Fig. 11.1 Location of sites projected on Late Neolithic – Bronze Age landscape. Legend: a: Buried landscape of crevasse sediments (Late Neolithic-Middle Bronze Age), zones per 10 cm; b: Boundaries of excavations of separate sites; c: Boundaries of distribution of finds based on coring; d: Boundaries of distribution of find layers based on coring; e: Present topography

and during the periods of habitation. On the crevasse sediments a layer had formed that was grey ('dirty') in colour due to decayed vegetation, human and animal activity and settlement debris.

After the prehistoric phases of habitation a phase of regular flooding caused the sites to be covered by clay sediments with a thickness of *c.* 0.4 m. On top of this sediment, directly underneath the topsoil, a thin vegetation layer is witness to a relatively dry phase with corresponding vegetation in the Iron Age or Roman period.

Van Zijverden (2002) undertook a detailed study of the geomorphologic evolution of the landscape in this part of the river area, resulting in the following chronology:

- 3600–3200 BC was a period during which crevasse sediments were deposited by a very active river in the vicinity of the sites. At the end of this period stagnation in the sedimentation occurred, causing the development of a vegetation layer in top of the sediments.
- 2200–1500 BC was a period in which the clay in the river basin subsided considerably and the crevasse ridges formed elevated areas in the landscape. On top of these ridges habitation took place.
- Around 1500 BC a brief period of flooding took place. After stagnation of the flooding a new vegetation layer developed in the top of the sediments.

Although discussion has risen as to the reliability of this phase, the dating seems rather solid (Van Zijverden 2002, 81; Hielkema *et al.* 2002, 235–236; Meijlink 2002, 758).

- 1250–c. 900 BC was a period of more permanent flooding. From a river that again flowed in the vicinity of the sites new crevasse sediments were deposited. After stagnation a third vegetation layer was formed in the top of the new sediments. Discussion has started about the beginning of this period (e.g. Lohof 2003). It appears that indeed the dating of this period was based merely on circumstantial evidence, *i.e.* on the absence of archaeological finds from 1250 onwards.
- c. 450–Roman Era was a period of new habitation in the area of the sites.
- This chronology is based on a combination of stratigraphy, carbon dates, archaeological contexts and earlier published paleo-geographical reconstructions. Since its publication discussion has risen about the dating of the brief period of flooding around 1500 BC. The dating of this phase is based on a radiocarbon dating, archaeological context and a similar situation at the sites of Eigenblok, that were situated more to the west in the vicinity of the same river system.

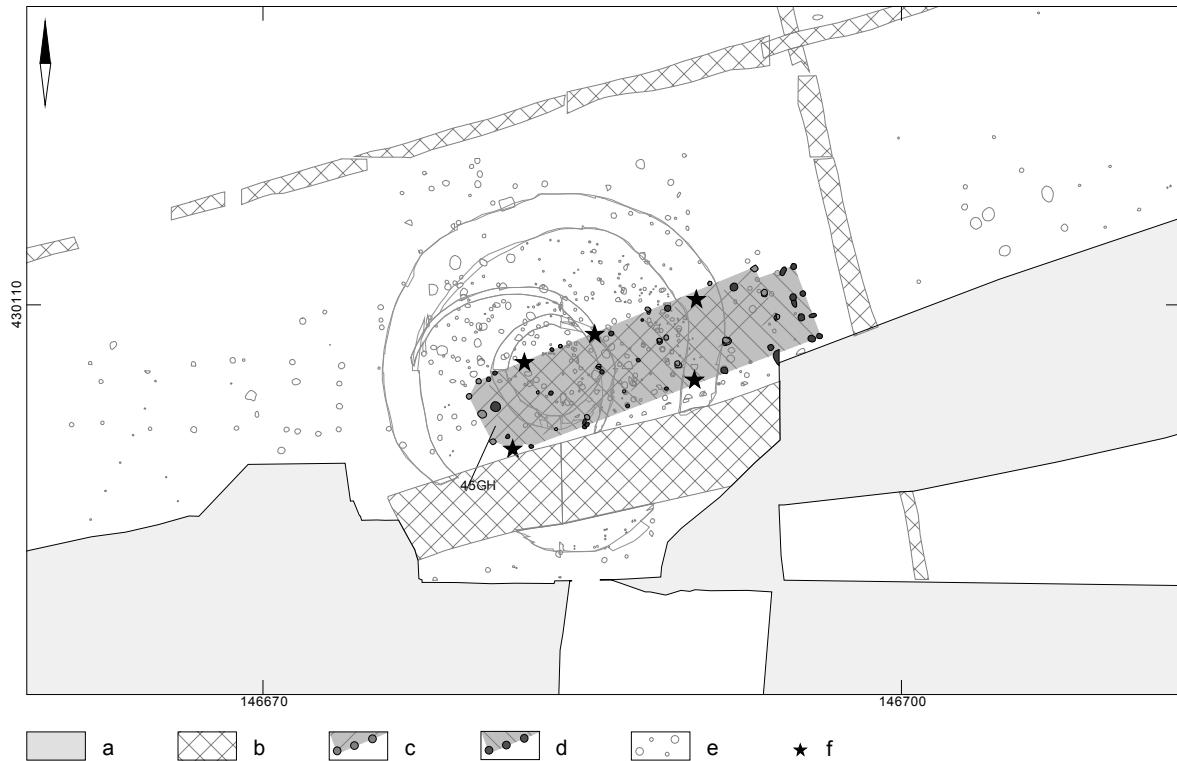


Fig. 11.2 Possible Late Neolithic house plans 45FH and 45GH.

Legend: a: Unexcavated area; b: Recent features (ditches etc.); c: House plan 45GH; d: House plan 45FH; e: Archaeological features; f: Suspected locations of postholes belonging to house plans

In the Late Neolithic-B, from c. 2450 BC onwards, river activity in the area became less and occupation on a more permanent basis became possible. The first inhabitants moved into a countryside with several raised crevasse ridges. In between the ridges, in the lower river basin areas, wet or marshy places were present. Drier places must have been located to the north and the east on top of the riverbank and riverbed sediments. The vegetation was fairly open.

In the Early Bronze Age (2000–1800 BC) the nearby river had lost all activity and had become fossilized. For the inhabitants of the sites of De Bogen this meant that the nearest active river was situated at a distance of 4.5 kilometres. The landscape differed hardly from that of the previous period at the end of this phase.

At the end of the Middle Bronze Age-A (1500 BC), however, river activity augmented and the landscape became wetter. In this period a reactivation of the river systems north and south of the sites took place. The eastern active river course was situated at a distance of 0.5–1 km from the sites. As a consequence of this reactivation, temporary floodings occurred which led to the sedimentation of clay in the lower parts of the landscape, in the basin areas and on the lower parts of the crevasse ridges (Van Zijverden 2002, 81). In the lower parts of the landscape, the oldest vegetation layer (1) was covered by peaty-clay sediments. As a result the area suited for habitation became smaller.

The beginning of the peaty-clay sediments was dated at the end of the Middle Bronze Age-A. Organic remains from the bottom of the peaty sediments were radiocarbon dated with a range between 1546 and 1409 BC. The sample of the sedimentation that was radiocarbon dated was taken from near site 28-1. The dating corresponds approximately to the dating of the formation of peat at the nearby excavation site Eigenblok (Jongste, this volume, Van Zijverden 2002).

When after a while the sedimentation stagnated again, a new vegetation layer (2) was formed. In the lower parts of the landscape this second vegetation layer is separated from the first vegetation layer (1) by a layer of clay sediments. In the higher parts of the landscape both layers coincide. Due to the temporary flooding and the renewed sedimentation, the size of the relatively dry area within the research area was diminished, especially in the west. During more recent studies the dating of these peaty-clay sediments have been subject to discussion (e.g. Van Zijverden 2004). Next to renewed perspectives on the paleo-geographical reconstruction of De Bogen, the distance between the site and the location of the carbon dated sample is considered to be too large. Due to the large distance the sample cannot be related without reasonable doubt to the sedimentation at the site. However, in spite of this discussion on the exact dating of the sedimentation, there still exists the stratigraphical sequence, surrounding sites 28-1 and 28-4, of vegetation layer 2 in the top of

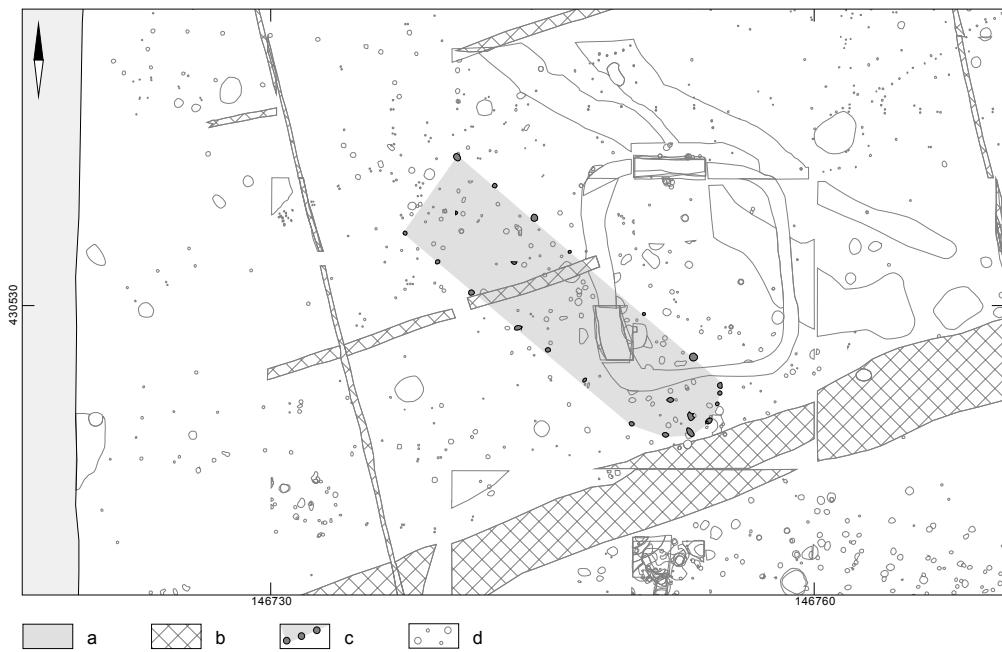


Fig. 11.3 Possible Early Bronze Age house plan 30HH.

Legend: a: Unexcavated area; b: Recent features (ditches etc.); c: House plan 30HH; d: Archaeological features

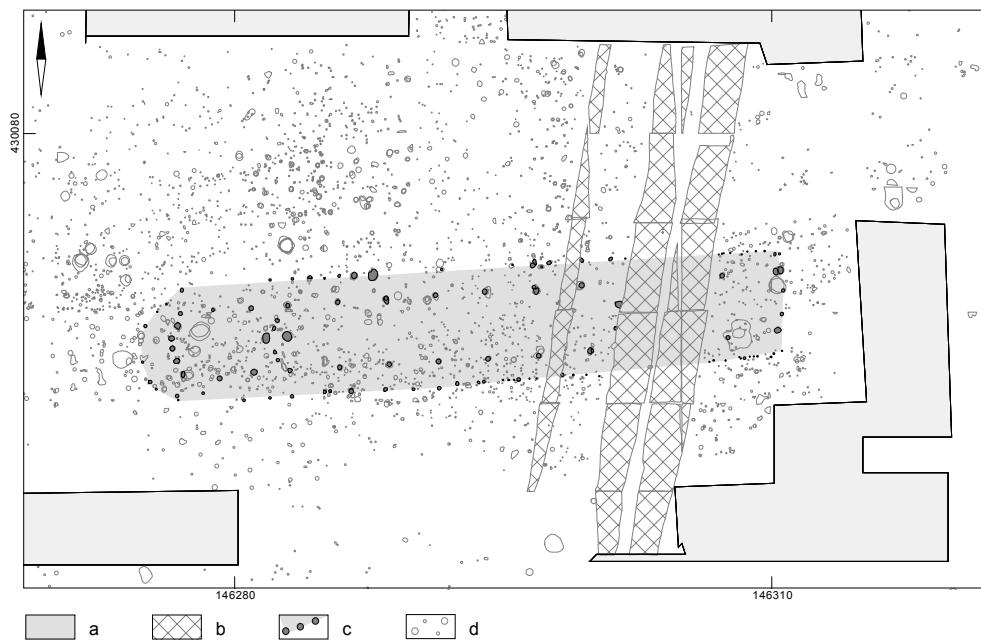


Fig. 11.4 Middle Bronze Age-A house plan 28-1AH.

Legend: a: Unexcavated area; b: Recent features (ditches etc.); c: House plan 28-1AH; d: Archaeological features

a renewed sedimentation on top of vegetation layer 1. In vegetation layer 1, surrounding site 28-1, finds dating to the Early Bronze Age and the Middle Bronze Age have been found. Vegetation layer 2 is part of the vegetation layer / find layer of the higher sites at De Bogen with habitation dating till the Middle Bronze Age-B. It is clear that the renewed sedimentation separating both vegetation layers

around sites 28-1 and 28-4 must be dated somewhere in the Middle Bronze Age. The available carbon datings at De Bogen and Eigenblok as well as the dating of the beginning of renewed sedimentations according to more recent studies (Van Zijverden 2002 and Van Zijverden 2004) clearly indicate a dating of the forming of the vegetation layer 2 in the beginning of the Middle Bronze Age-B.

	30	29-N	29-Z	45-W	45-O	45-barrow	28-1	28-2	28-3	28-4
LN	19.0	15.5	33.7	14.3	23.2	38.1	3.8	17.9	4.5	0.0
EBA	20.2	26.5	10.9	33.3	14.3	1.8	14.9	13.4	4.6	2.1
MBA	9.7	10.7	1.1	0.0	3.6	18.5	22.3	17.9	25.0	39.0
Not datable	51.1	47.3	54.3	52.4	58.9	41.6	59.0	50.8	65.9	58.9
Total	100	100	100	100	100	100	100	100	100	100

Table 11.1 Percentages of dated pottery at each site

In the period from 1200 till c. 900 BC the landscape was subject to a raised water level and semi-permanent flooding, causing the area to be unsuitable or at least unpopular for habitation. From an active river system in the vicinity of the sites new crevasse sediments were deposited (Van Zijverden 2002). The new crevasse ridges covered to a large extent the older crevasse ridges, in the process of which in the eastern part of the research area the vegetation layers 1 and 2 were partly or completely eroded. After stagnation a third vegetation layer (3) was formed in the top of the new sediments. The raised water level resulted locally in 'deeper' waters between the crevasse ridges. Botanical research showed that in this period the landscape became more densely grown with trees and that indicators for human activities were absent (Hänninen and Van Haaster 2002; Meijlink 2002). In the period that followed, activity of the nearby river system decreased and the water level lowered (Meijlink and Kranendonk 2002). The landscape again became drier and more open. Vegetation was probably very similar to that of the periods preceding the wet period.

## Archaeological remains

### Late Neolithic-B (c. 2450–2000 BC)

Although at almost every site within the research area a fairly large amount of Late Neolithic pottery was found, only at site 45-east possibly two or three Late Neolithic house plans could be reconstructed (Meijlink and Kranendonk 2002, 218–224; Fig. 11.2). Late Neolithic house plans are scarce in the Netherlands. So far only three or four are known. Yet it is clear, also from other areas in Northwest Europe, that at least until 1800 BC two-aisled houses were the standard (Fokkens 2003; 2005; Hogestijn and Drenth 2000). The house plans 45FH and 45GH show similarities to house plans of the Vlaardingen Culture excavated in Haamstede-Brabers (Verhart 1992).

Close to the location of the possible house plans, a pit was excavated with in the fill the skeletal remains of a human foot. Next to this, the pit contained nineteen sherds of Bell Beaker pottery and mostly large fragments of animal bone, amongst which bone fragments of red deer. The large fragments without knaw marks possibly point

towards the deposit of larger pieces of flesh or meat. In combination with the bone fragment of the human foot one could suggest a ritual context (the pit is called burial 4). At the same location in the Bronze Age a burial place and later a barrow was erected.

### Early Bronze Age (c. 2000–1800 BC)

It is clear that in the Early Bronze Age habitation took place at several sites within the research area (Table 11.1). It is however very difficult to reconstruct plans of houses belonging to this habitation period. This is not unique for the site; from the entire Netherlands only two more or less reliable plans are known. Both are irregular of form and two-aisled in structure (Fokkens 2005). With these examples of Noordwijk and Molenaarsgraaf in mind, the reduced field drawings (scale 1:100; 1:200) were used to search for possible post-configurations that could pass for house plans. A few configurations were indicated as house plans (Meijlink and Kranendonk 2002, 151–152, 175–176, 179). Of these plans, 30HH is the most convincing (Fig. 11.3). Other possible, yet even less convincing plans – five in all – have been (re)constructed at site 29, site 28-1 and at site 28-4 (Meijlink and Kranendonk 2002, 256–258, 281–283). The attempt to discover house plans on these sites was clearly motivated by the assumption that the large amount of settlement debris on these sites belonged to a farmstead with a house.

In retrospect this exercise may have been in vain. Like everywhere else in the Dutch river area, and in the Netherlands in general, remains from Early Bronze Age settlements produce many pits and features, but rarely clear plans. Maybe we will have to consider the possibility that several sites with clear features were in fact semi-permanent sites without solid houses. In the interest of this discussion it is important to determine criteria for permanent and semi-permanent settlements instead of trying to reconstruct vague house plans. A criterion for permanence will not only be a large amount of settlement debris, but we will also have to look for indicators of all year round habitation. These indications can possibly be found in paleo-ecological observations. Apart from that, we will have to decide whether features like wells are typical for permanent settlements.

Alas, the excavations at De Bogen will not help us very

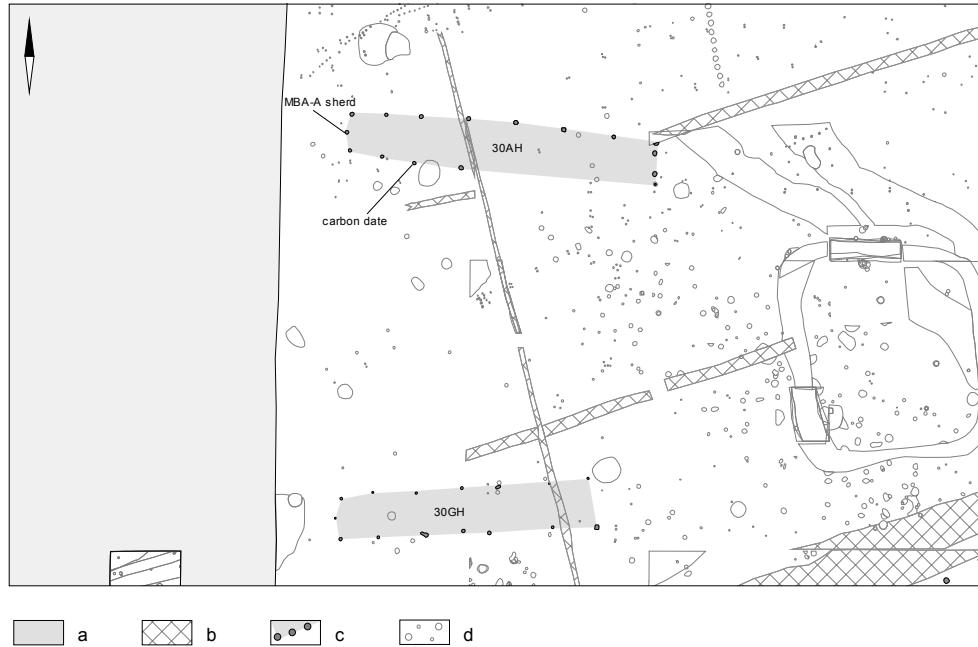


Fig. 11.5 Middle Bronze Age-A house plans 30AH and 30GH.  
Legend: a: Unexcavated area; b: Recent features (ditches etc.); c: House plans; d: Archaeological features

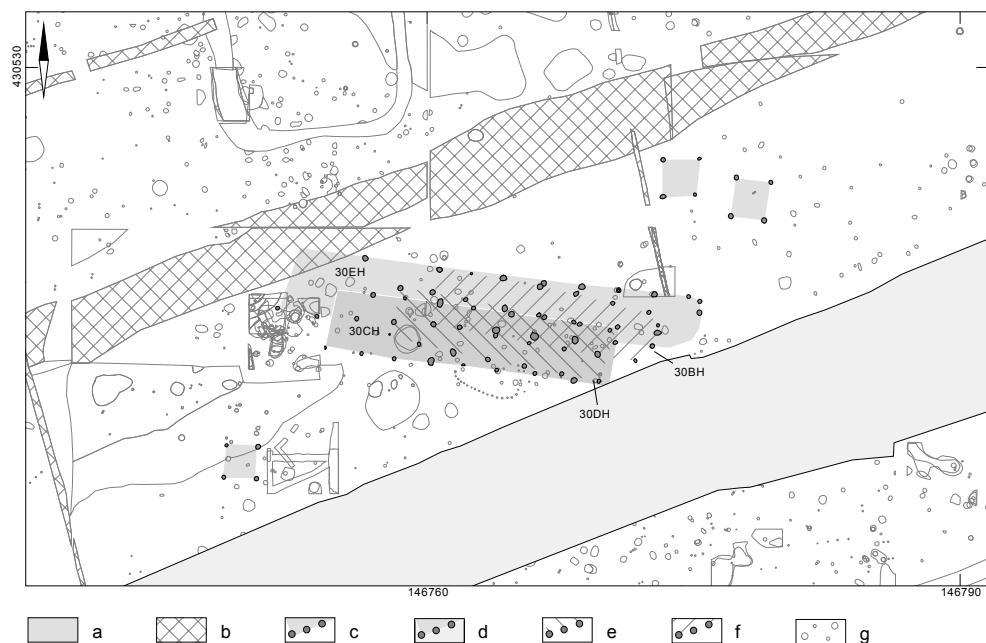


Fig. 11.6 Middle Bronze Age-B house plans 30BH, 30CH, 30DH and 30EH.  
Legend: a: Unexcavated area; b: Recent features (ditches etc.); c: House plan 30EH; d: House plan 30CH; e: House plan 30DH; f: House plan 30BH; g: Archaeological features

much further in this discussion since we are stuck with a palimpsest situation: most paleo-ecological finds cannot be ascribed to one particular period of habitation without a certain degree of doubt and are therefore in principle completely useless for any form of analysis.

Based on the distribution of the dated features it is clear that at the sites 30, 29–north, 29–south, and possibly

also at 28–1 and 28–4 activity areas of yet undetermined character can be reconstructed consisting of several pits and concentrations of postholes. These concentrations of postholes can belong to yet not clearly discernible house plans and to small storage huts. Wells seem to be situated outside the boundaries of these activity areas. It is assumed that through the ages wells were dug at the same locations.

Site	Number of three-aisled house plans	Recognised in the field	Reconstructed on drawing table
30	6	5	1
29	7	3	4
45	5	4	1
28-1	3	1	2
28-4	4	0	4

Table 11.2 Three-aisled house plans per site

In the northeast corner of site 30, for instance, a cluster of wells was excavated. It is likely that one or two of these wells belonged to the habitation phase of the Neolithic. Several other wells belonged to the Early Bronze Age and the rest belonged to the Middle Bronze Age.

There are no burials excavated that can be dated to this period. The ritual location that was already there seems to have been respected. Not a single sherd that could be dated to this period was found here. This is in contrast to the fact that at every other site Early Bronze Age pottery has been found.

### ***Middle Bronze Age in general (c. 1800–1100 BC)***

At the sites relatively small amounts of pottery dating to the Middle Bronze Age have been found (Table 11.1). This is in contrast to the large amount of contemporary house plans. This may be caused by a combination of two factors. The first being erosion by new crevasse sediments during the Late Bronze Age / Early Iron Age. Due to the erosion the top part of the vegetation layer on the sites, containing mostly the latest deposited finds, has been washed away. The second factor is that Middle Bronze Age pottery, lacking decoration, is hard to recognise. Middle Bronze Age pottery might well be present, but not recognised as such. The major part of the category 'undated' in Table 11.1 could be formed by this pottery.

A total of 25 three-aisled house plans has been discovered on the sites of De Bogen (see Table 11.2). Thirteen of these house plans have been recognised in the field during excavation. The remaining twelve plans were reconstructed during the post-excavation analysis. Most of the plans recognised in the field were situated relatively isolated. Their construction is (fairly) certain. Most of the reconstructed plans are situated in the midst of very dense concentrations of postholes and other features. Of approximately half of these plans the reconstruction is uncertain.

Their length varies between 12.20 and 31.50 metres. House plan 28-1AH has the exceptional length of 36.25 metres. House plan 45HH, also interpreted as a house plan belonging to a burial rite (see below, Bourgeois and Fontijn, this volume), has a length of merely 10.20 metres. The distance between the parallel rows of supporting posts varies between 2.48 and 3.30 metres. House plan 28-1AH shows an exceptional distance of 3.65 metres.

Based on typology they can be dated in the Middle Bronze Age-A or -B. In the following text it is explained why seven, and possibly 10, house plans are dated to the Middle Bronze Age- A and the remaining to the Middle Bronze Age-B.

Houses and farmyards of the Middle Bronze Age-A (c. 1800–1500 BC)

Seven, possibly ten, house plans were dated specifically in the Middle Bronze Age-A based on geomorphologic context in combination with the situation of the houses, classical Hilversum pottery and radiocarbon dated vegetation remains from postholes. The finest example forms house 28-1AH (Fig. 11.4). The dating of these houses in the Middle Bronze Age-A is based on a complex stratigraphical analysis that we need not repeat here (see Meijlink and Kranendonk 2002).

In short it can be concluded that the house plans found on the narrow crevasse ridges at site 28-1 and 28-4, are contemporary to vegetation layer 1 and date before the beginning of the Middle Bronze Age-B. The crevasse ridges apparently were no longer suited for habitation during and shortly after the forming of vegetation layer 2. Instead the ridges and their surroundings were used for pasture. In support of a stratigraphical dating of the houses a relatively large - in comparison with the other sites - amount of pottery was found that indeed could be dated to the Middle Bronze Age-A.

At the other sites both vegetation layers coincide, meaning that it is almost impossible to make a distinction between farmsteads dating to the Middle Bronze Age-A and farmsteads from the Middle Bronze Age-B. Based mainly on the situation of the three-aisled houses 30AH and 30GH on site 30 and 29IH on site 29 closely to the edge of the crevasse ridges, I suggest that these house plans might also date in the Middle Bronze Age-A (Meijlink and Kranendonk 2002, 143–145, 150–151). Especially the house plans 30AH and 30GH on site 30 were situated on the western lower parts of the crevasse ridges, which were at approximately the same level as the top of the crevasse ridges at sites 28-1 and 28-4. It is therefore most likely that these lower parts here also became too wet for habitation and that in the following phase habitation moved more towards the higher parts of the ridges in the east.

In addition, it can be put that no finds later than the Middle Bronze Age-A were found in relation to these plans. From a posthole of house plan 30AH (Fig. 11.5), charcoal

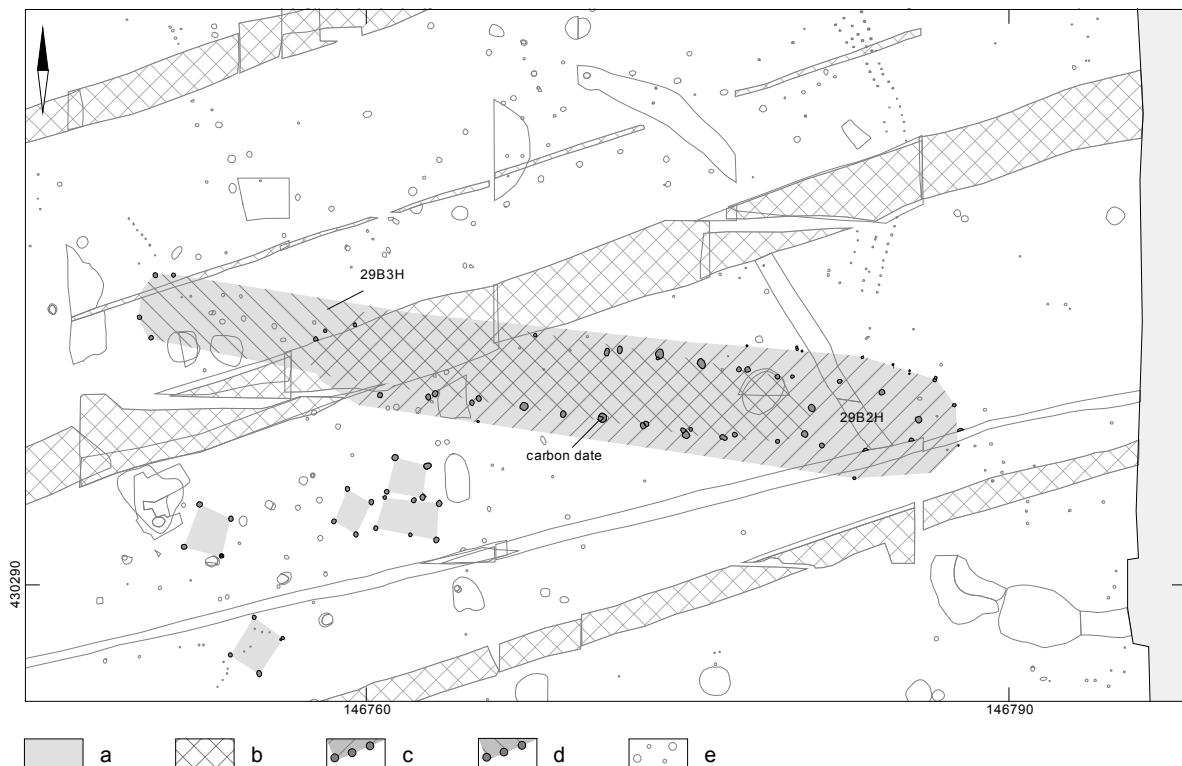


Fig. 11.7 Middle Bronze Age-B house plans 29B2H and 29B3H.

Legend: a: Unexcavated area; b: Recent features (ditches etc.); c: House plan 29B2H; d: House plan 29B3H; e: Archaeological features

was radiocarbon dated to the Middle Bronze Age-A. In the central posthole in the west end of the plan a classical Hilversum sherd was found. House plan 30GH was situated somewhat to the south and showed a similar layout.

Three-aisled house plans at several sites were repeatedly surrounded by a combination of features, which leads to some general conclusions about farmyard reconstructions (Meijlink and Kranendonk 2002). On farmyards around the three-aisled houses of the Middle Bronze Age probably several storage huts (Dutch: spiekers) were present as well as several pits. The farmsteads were bounded by fences of small stakes. At site 30 an oval ring ditch (c. 9 x 3.5 m) was found, surrounded by a fence of small stakes of which the function is not clear. At this site two other semi-round fences were discovered, which may have been sheep pens.

As is the case with the situation depicted above for the Early Bronze Age, for the Middle Bronze Age the palimpsest situation made it impossible as well to draw conclusions about the geography and the location of activity areas at each farmyard. At site 28-1 the find layer has been excavated integrally. The fact that the largest concentration of Middle Bronze Age pottery was found in the western part of the (house)sites, might indicate that the living area was situated in the western part of the (re)constructed houses.

### A Middle Bronze Age-A burial

At the location of the Neolithic ritual pit a new burial seems to have taken place in this period. A ring ditch was excavated, which was off-centre to two other ring ditches that were probably of later date. The ring ditch was probably related to a central burial, which has not been preserved: a smaller ring ditch of later date is dug directly over the centre and is likely to have disturbed any central interment.

### Houses and farmyards of the Middle Bronze Age-B (c. 1500–1100 BC)

Fifteen, possibly 18, house plans are dated to the Middle Bronze Age-B. Remarkable is that several of these appear to overlap. At site 30 four overlapping house plans are recognized (Meijlink and Kranendonk 2002, 145–149). They were situated on the higher part of the crevasse in the southeast corner of the site (Fig. 11.6). They all show the same layout of a three-aisled plan. This leads to the assumption that with short intervals they were built within a same (family-) tradition at the same location. Radiocarbon dates on organic remains from the filling of several postholes are not very conclusive. They result in dates in the Middle Neolithic-B, the Middle Bronze Age-A, the Middle Bronze Age-B and even also with a range from the end of the Middle Bronze Age-B till the beginning of the Late Bronze Age. Pottery from the filling of the

postholes can be ascribed to the Late Neolithic, the Early Bronze Age and the Middle Bronze Age. Combination of the contextual analyses results in the dating of these houses to the Middle Bronze Age-B.

At the eastern half of site 29-north another two sets of overlapping house plans were distinguished (29B2H and 29B3H: Meijlink and Kranendonk 2002, 170–178; Fig. 11.7). Based on the horizontal stratigraphy of the postholes, house 29B2H must have been the predecessor of house 29B3H, which was built somewhat more to the west. The same will be the case with the plans 29AH and 29GH, where 'successor' 29GH was built somewhat more to the west. These houses all stood on the higher parts of the crevasse. Charcoal from the filling of a posthole of house 29B3H and house 29AH has been radiocarbon dated in the Middle Bronze Age-B.

For the farmsteads there seems to be hardly any difference to the situation in the Middle Bronze Age-A. Yet, remarkable for this period is the place-continuity of the farmyards, which is demonstrated by the overlapping house plans. At three different locations on sites 30 and 29 new houses were rebuilt (almost) at the same location of a predecessor. Instead of looking for another suitable place for the farmyard or even for the location of a new house within the existing farmyard, there must have been reasons for succeeding generations to remain at exactly the same location of an ancestral house and farmyard. This phenomenon will be discussed below.

### ***A Middle Bronze Age-B burial***

Exactly at the location of the Neolithic ritual pit and the ring ditch from the Middle Bronze Age-A, a burial took place that, according to the latest insights, is dated to the Middle Bronze Age-B (see Appendix). It concerns the burial of an adult in squatted position (burial 1), which can be related to house plan 45HH. The burial is situated exactly in the middle of this house or structure, as well as it is situated exactly in the centre of a wide ring ditch. At a somewhat later date a secondary burial took place: skeletal remains of a baby were found close to the primary burial (burial 2).

Possibly at the end of the Middle Bronze Age-B or even later, in the Late Bronze Age, exactly on top of the burial of the squatted adult (burial 1) a man was buried (burial 3). As burial gifts this person received a bronze rapier and two bronze arrowheads. The burial was surrounded by a small circular ring ditch, which was perfectly concentric to the wide ring ditch ascribed to burial 1. Apart from that, this burial was at very close distance surrounded by an oval ditch in which probably a wooden construction was placed. The radiocarbon dating of burial 3 suggests a dating to the Late Bronze Age. However, since no settlement debris from this period has been found at De Bogen, this dating is thought to be unlikely.

### ***Late Bronze Age and Iron Age (c. 1100–12 BC)***

The conclusion of the botanical research was, that there was hardly any human activity in the area during the Late Bronze Age and the Early Iron Age. This conclusion is supported by the absence of settlement debris dating to this period.

In spite of the absence of traces of habitation at the sites of De Bogen, the location of the barrow continued to serve as an important ritual place in the Iron Age. Outside the smaller ring ditch the inhumation graves of a juvenile and a child (burial 5 and 6) were found. Both burials are dated to the Middle Iron Age (Butler and Hielkema 2002 and Meijlink 2002).

At site 30 a rectangular (almost square) ditch structure was excavated (Meijlink and Kranendonk 2002, 160). The ditch was dug from a higher level, i.e. from the vegetation layer that was dated to the Iron Age or the Roman period. In the filling of the ditch two skulls of horses were found. Looking at possible parallels, for instance at Oss-Ussen, the structure could have belonged to a grave monument from the Middle Iron Age (Van der Sanden 1998).

### ***Concluding remarks on the settlement through the ages***

The dynamic and varied landscape of the location De Bogen gave shelter to several different settlements over a period of more than thousand years. The earliest habitation took place in the Late Neolithic. Although on several crevasse ridges protruding in the river basin a fair amount of Neolithic debris has been found, no clear indications of farmyards with houses can be reconstructed (Fig. 11.8). Most likely the sites have been the scenery of semi-permanent settlements in the form of camps for task groups coming from a permanent settlement elsewhere to perform their season-bound activities (Meijlink and Kranendonk 2002; Fokkens 1998).

Yet during the post-excavation analysis an attempt has been made to reconstruct two or three Neolithic house plans at site 45 at the important ritual location of the later barrow that was repeatedly used for ritual and burial practice throughout the centuries. At the location a rather isolated and dense concentration of Neolithic debris (fragmented pottery, animal bone, burnt clay and stone) was found. This is the reason why one could consider a form of permanent settlement here.

At this location a Neolithic ritual pit was excavated. Its ritual character is concluded from its contents, which consisted of a large amount of pottery, human bone and large pieces of animal bone.

The fact that this location possessed a very special character is concluded from the presence of this ritual pit, but moreover from the presence of several burial phases dating to later times; namely from the Middle Bronze Age until the Iron Age. It might have been the confirmation

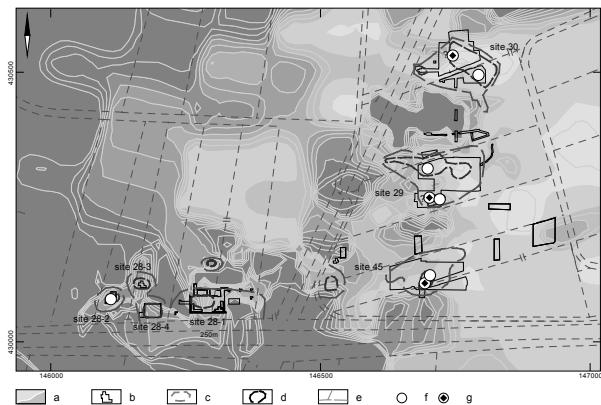


Fig. 11.8 Location of Late Neolithic sites

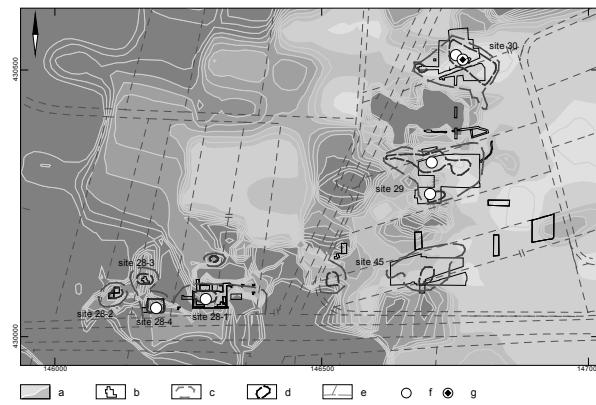


Fig. 11.9 Location of Early Bronze Age sites

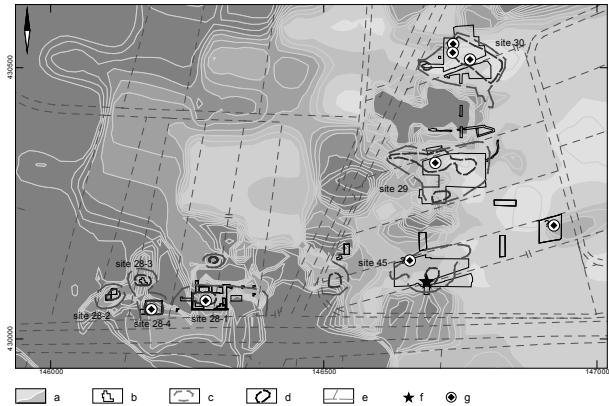


Fig. 11.10 Location of Middle Bronze Age-A sites

Legend: a: Buried landscape of crevasse sediments (Late Neolithic-Middle Bronze Age), zones per 10 cm; b: Boundaries of excavations of separate sites; c: Boundaries of distribution of finds based on coring; d: Boundaries of distribution of find layers based on coring; e: Present topography; f: Camp sites; g: Possible house plans

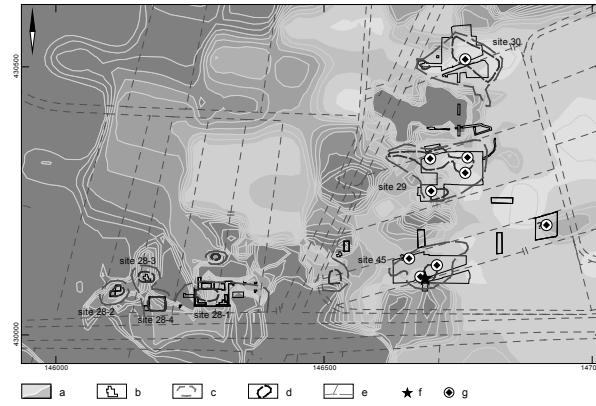


Fig. 11.11 Location of Middle Bronze Age B sites

of ancestral possession of the surrounding lands and as such the premises for a claim by the community on these grounds. As such the location must, in the context of a Neolithic and Early Bronze Age semi-permanent settlement, have served as a territorial marker to which task groups yearly returned.

During the Early Bronze Age the character of the habitation at De Bogen seems indeed to have become more intense or more continuous. Yet clear indications of a permanent settlement could not be found. A very considerable part of the dated pottery found on the sites dates to this period. The problem, however, is that the house plans we tried to reconstruct are not very convincing. It is therefore more likely that the debris dating to the Early Bronze Age still belongs to a semi-permanent settlement. Activity areas (camps rather than yards) from this period were situated at the sites 30, 29 and 28-1 and 28-4 (Fig. 11.9). The location of the later barrow seems to have been respected in this period. Hardly any pottery dating to this period was found here.

In the Middle Bronze Age the landscape clearly formed the scenery for a widespread permanent settlement with farmyards on every crevasse ridge. Twenty-five three-aisled

house plans were found spread over a number of sites.

Especially in the Middle Bronze Age-A the inhabitants seem to have chosen the transition from the lower, wet parts of the landscape to the higher, dry grounds as the location for their farmyards. This corresponds to the spreading of concentrations of debris from the Early Bronze Age. On the narrow crevasse ridges of the sites 28-1 and 28-4, surrounded by the lower river basin, intense habitation took place (Fig. 11.10). Here the remains of a farmyard with various construction phases were found. At the end of the Middle Bronze Age-A, due to flooding and temporary renewed sedimentation, these crevasse ridges apparently became unsuitable for habitation. It is assumed that in the Middle Bronze Age-A also farmyards existed in the western parts of sites 30 and 29, at the edge of the crevasse ridges here, close to the lower parts of the river basin. The house plans that were found here are built at locations that show the same level as the top of the crevasse ridges at sites 28-1 and 28-4. These locations must have suffered in an identical way from the renewed flooding and sedimentation.

In the Middle Bronze Age-A the importance of the ritual location at site 45 is confirmed by the digging of a (eccentric) ring ditch. This most likely belongs to a barrow

or burial-construction of which the central burial has not been preserved.

In the Middle Bronze Age-B, possibly due to the fact that the environment became more wet, the houses and farmsteads at the sites 30, 29 and 45 moved more towards the higher places of the crevasse ridges at the centre of the sites (Fig. 11.11). It is remarkable that at site 30 a house seems to have been rebuilt three times at the same location. At site 29 two houses were rebuilt at the same location, which only shifted a short distance towards the west. This phenomenon leads to the assumption that choices for new locations were restricted. The rather widespread crevasse ridges offered, however, enough space for choosing a new location for a farmstead (unless they also were inhabited and De Bogen was in fact a very densely populated area). It is therefore assumed that the restriction in choosing locations within the farmyards might have been caused by claims of separate families on particular areas within the research area. The structural continuity within the yards might have been a result of stipulating claims on surrounding arable land and pastures.

A settlement reigned by restrictions in choosing locations and claims on grounds implies it was a settlement consisting of several contemporary farmyards. Each farmyard will have housed a separate extended family that followed its own tradition by staying one generation after the other at the exact same location. At a certain stage in the Middle Bronze Age-B at least four farmyards will have existed at De Bogen: at sites 30 and 29 one and at 45 two farmyards.

Burial 1 of an adult in squatting position on the ritual location at site 45 belongs probably to the beginning of the Middle Bronze Age-B. The possibility that a large house was built over it in the centre of a wide ring ditch makes this an impressive burial. Somewhat later a baby (burial 2) was buried close to this adult. It is obvious that this location with its concentration of burials played an important role as territorial marker in the process of choosing locations to settle throughout the ages. It most likely symbolised the identity of the community.

Towards the end of the Middle Bronze Age-B habitation must have ended. The population decreased and probably only two farmyards remained: at site 29 and 45. This will have been caused by a combination of factors. The main factor however must have been the continuous flooding of the landscape and the subsequent diminishing of available lands. Such a diminishing of suitable lands can lead to social tensions. It will be the result of this process that towards the end of the Middle Bronze Age-B the inhabitants of house 45BH apparently enclosed the barrow into their farmyard. It seems that one extended family claims the 'ancestral' identity marker transforming it from the heritage of a larger community into the heritage of one family. The large amount of fragmented Middle Bronze Age pottery, next to other debris found at the location can be related to this farmyard.

Radiocarbon dating of tooth enamel and bone apatite

from burial 3 suggests that the burial took place after the habitation of house 45BH. It concerns another impressive stretched burial of a man who received a bronze rapier and two bronze arrowheads. These gifts probably also can be interpreted as a symbol for the increased tensions within the society.

Severe flooding and the sedimentation of new crevasses caused radical changes to the landscape and the end of habitation within the research area, which lasted over 1200 years. The location of the barrow however retained a certain ritual importance. During the Middle Iron Age the place was once again used for the burial of a juvenile and a child.

## Acknowledgements

I would like to express many thanks to Harry Fokkens and Stijn Arnoldussen. Without their critical remarks this article would not have its present form. Stijn also contributed largely in the producing of the presented figures.

## Appendix: The barrow of De Bogen

During the excavation the remains of a barrow with several burial phases were unearthed at site 45. The interpretation and the determination of the chronology of the several burial phases proved to be very complex and has been subject of numerous discussions after its initial publication (e.g. Meijlink 2002; Lanting and Van der Plicht 2003; Lohof 2003). At present the barrow is anew subject to studies performed by Q. Bourgeois and D. Fontijn (University of Leiden). Both scholars very carefully look at where contextual evidence meets absolute evidence such as radiocarbon dating (Bourgeois and Fontijn, this volume); this in contrast to the earlier studies. I initially let the contextual evidence prevail over absolute evidence offered by the radiocarbon datings and Lanting and Van der Plicht did just the opposite.

Bourgeois and Fontijn recently presented me with the preliminary results of their studies. It is their reinterpretation that I will present here below, because I am inclined to believe that this is a more convincing combination of facts than the earlier published interpretations by me as well as by Lanting and Van der Plicht. Still, I would like to present this reinterpretation by Bourgeois and Fontijn with the personal remark that it is at least very remarkable that the impressive burial 3 with the rapier apparently took place in a region that due to flooding seemed not to be inhabited and that in a widespread area surrounding the site of De Bogen no remains of contemporary settlement activities have been found until the today.

Phase 1 consists of the pit with - amongst large fragments of animal bone - also fragments of a human foot. The pit contained fragments of Bell Beaker pottery and was carbon dated to 3665 ± 60 BP (2199–1883 BC; Fig. 11.12).

The second phase is probably formed by an eccentric ditch, which might date to the Middle Bronze Age-A. The find of a sherd of Hilversum I pottery (Classical Hilversum) in the fill

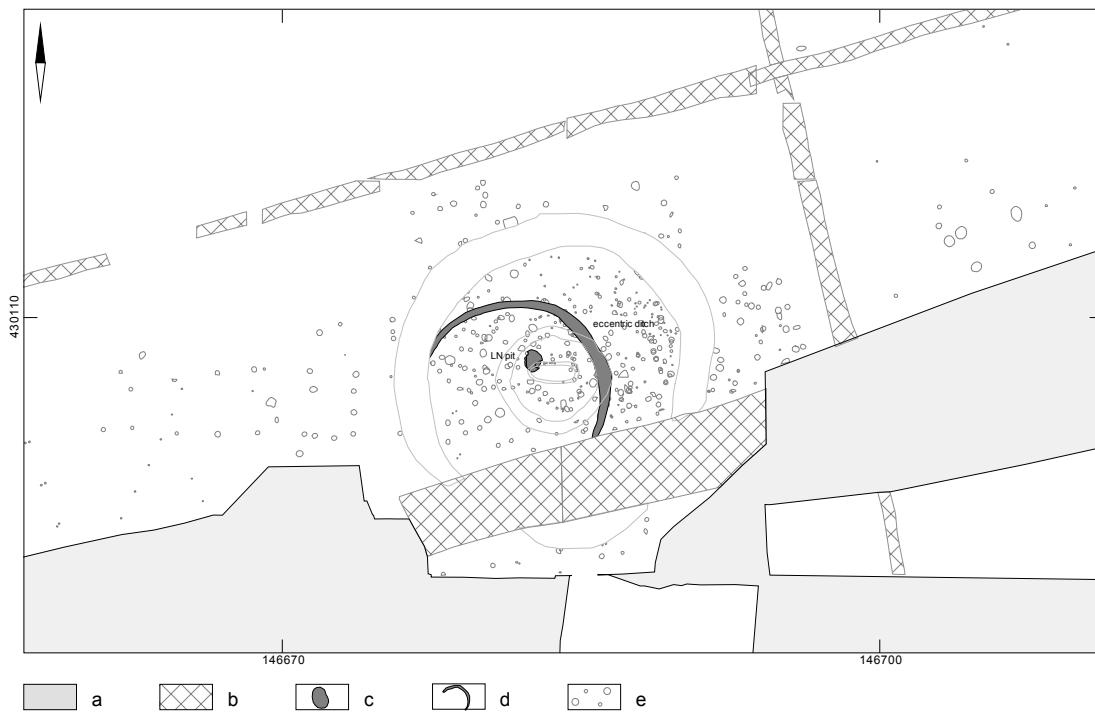


Fig. 11.12 Burial phase 1 and 2. Legend: a: Unexcavated area; b: Recent features (ditches etc.); c: Late Neolithic pit; d: Eccentric ring ditch; e: Archaeological features



Fig. 11.13 Burial phase 3. Legend: a: Unexcavated area; b: Recent features (ditches etc.); c: House plan 45HH; d: Burial phase 3; e: Archaeological features

forms an indication for its dating. The ditch was probably related to a central burial, which probably was disturbed during a later burial phase, when a smaller ring ditch was dug directly over the centre of the eccentric ring ditch.

The third phase probably was covered by a barrow surrounded

by a large ditch. It consists probably of burial 1, a squatted inhumation of an adult with radiocarbon datings of  $3200 \pm 60$  BP (1617–1319 BC, bone apatite) and  $3300 \pm 60$  BP (1735–1441 BC, tooth enamel). The burial seems to be related to a large ‘burial’ house (45HH). From the filling of three postholes of this house

charcoal and seeds have been radiocarbon dated in approximately the same period ( $3360 \pm 45$  BP (1733–1537 BC),  $3135 \pm 45$  BP (1515–1265 BC) and  $3130 \pm 50$  BP (1515–1265 BC)). Also belonging to this burial phase probably is the secondary burial of a baby (burial 2) according to the radiocarbon dating on bone apatite:  $3160 \pm 50$  (1523–1315 BC; Fig. 11.13).

The primary stretched inhumation of a man of whom bone apatite and tooth enamel was radiocarbon dated exactly contemporary:  $2790 \pm 60$  BP (1125–823 BC) formed the fourth phase. The buried man received a bronze rapier and two bronze arrowheads as burial gifts. Bourgeois and Fontijn (this volume) state that the rapier very well can be dated in the Late Bronze Age. The burial was surrounded by a small ring ditch, which on typological grounds seems to confirm the dating of this burial phase in the end of the Middle Bronze Age-B or the Late Bronze Age. The small pot that initially was related to the burial of the baby because of its location close to this burial has been dated to the Late Bronze Age by Bourgeois and Fontijn and is thus connected with burial 3 rather than to an earlier burial phase (Fig. 11.14).

During the Iron Age the location of the barrow was once again used for burial practice. Somewhat northeast of the small ring ditch two inhumations were unearthed that belong to a fifth burial phase (Fig. 11.15). It concerned the inhumation graves of a juvenile and a child (burial 5 and 6). Of burial 5, bone apatite was radiocarbon dated  $2300 \pm 50$  BP (481–203 BC) and tooth enamel was radiocarbon dated  $2360 \pm 50$  BP (759–233 BC). Of burial 6, bone apatite was radiocarbon dated  $2320 \pm 30$  BP (407–261 BC) and tooth enamel was radiocarbon dated  $2280 \pm 60$  BP (481–173 BC). The dating of the burials in the Middle Iron Age is confirmed by the find of a tin bead and a bronze ring (earring?) as well as by the fact that during the Middle Iron Age more inhumation burials have occurred next to the more common cremation burials.

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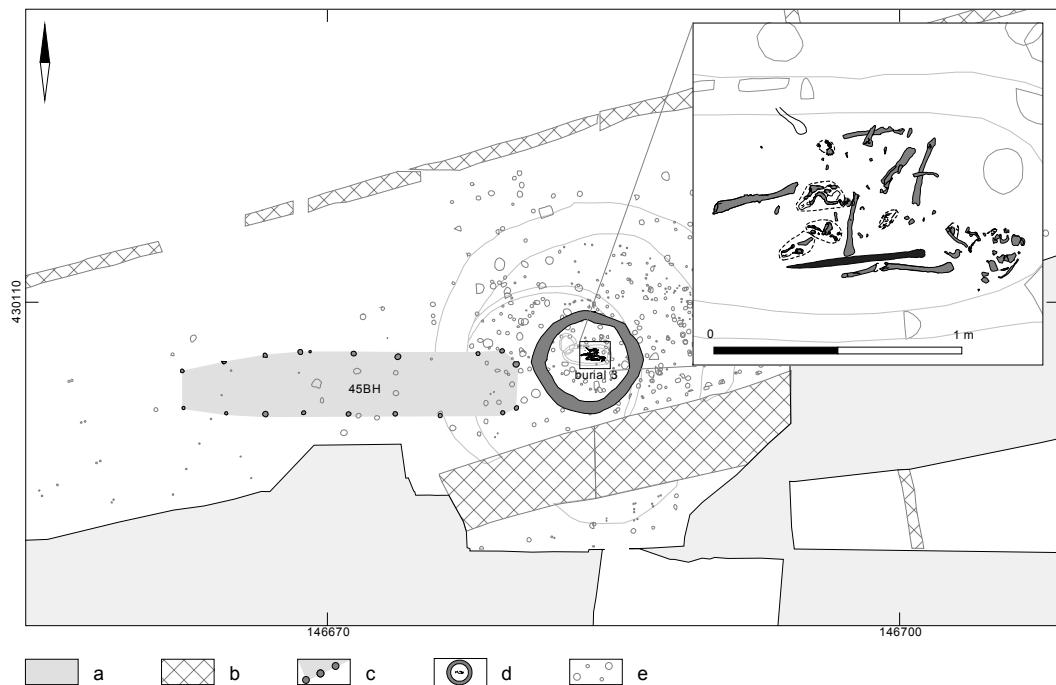


Fig. 11.14 Burial phase 4. Legend: a: Unexcavated area; b: Recent features (ditches etc.); c: House plan 45BH; d: Burial phase 4; e: Archaeological features



Fig. 11.15 Burial phase 5. Legend: a: Unexcavated area; b: Recent features (ditches etc.); c: Burial phase 5; d: Archaeological features

## 12 Marking while taking land into use: some indications for long-term traditions within the Oer-IJ estuarine region

*Linda L. Therkorn*

### Introduction

Traditions of taking land into use are here briefly addressed for the prehistoric Oer-IJ estuarine region within the province of Noord-Holland, as well as how these areas were evidently marked in the horizontal and in the vertical sense, through time. Landscape archaeology has been the focus of excavations done within the region by the University of Amsterdam's Oer-IJ Estuary Project since the early 1980's (cf. papers in Brandt *et al.* 1987).<sup>1</sup> 'Sites' or 'off-sites' are really not proper designations within this region. None of the excavated areas, however large, have encompassed all recoverable features for any one 'period'. 'Landscape' in this paper is used in terms of 'the social construction of space, containing a bundle of practices, meanings, attitudes and values. As such, it is a term appropriate to a humanistic understanding of the environment' (Darvill 2002, 220). Emphasised here will be the archaeological traces of how construction of space proceeded, something of the recovered practices, but little on possible meanings except in general terms. Permanent settlement will not be addressed, but only mentioned as a type of use typifying certain times within the windows excavations afforded. As this volume is on the Bronze Age, the earliest traces within the Velserbroek polder gain the most attention and some remarks will be made thereafter on three other polder areas (Fig. 12.1). Concluding remarks take up the various forms of use inter-relating the landscape as long-term types of spatial emphasis and patterning.

Briefly, first something of the physical environment: Figure 1 shows very schematically the main prehistoric Oer-IJ estuarine channel as it is now understood for about 1000 BC (for the complex interpretation: palaeogeographic maps Vos and Soonius in Lange, *et al.* 2004). In general, by

about 2500 BC, a series of coastal barriers were forming and extending the coastline to the west. The tidal inlet of the Oer-IJ also shifted: by the Broekpolder (Fig. 12.1) around 2500 BC; by 1000 BC, the inlet was about 8 km more to the northwest, in the vicinity of Castricum (*ibid.*). There was also a gradual shift to the east of the Oer-IJ main channel.

While the channel was open, there were alternating periods of greater and lesser tidal amplitude affecting the build-up of land through long-term cycles of more frequent flooding from the Oer-IJ channel and its creek tributaries. Sedimentation of these layers of clay occurred up to 4 km away from the main channel in low-lying areas. During periods when drainage worsened, fen peat accumulation occurred within these same low-lying areas and these could become through time (again in cycles) oligotrophic peat and thus higher-lying. Along the main Oer-IJ channel, there was also a cycle of tidal flats and salt marshes, to high salt marshes until - by about 200 BC - the Oer-IJ tidal inlet had become blocked and these environmental cycles ended (Therkorn *et al.* forthcoming). During these same two millennia, wind-blown sand from the coast was adding to the height of the series of coastal barriers and also leading to aeolian sand deposits over some areas of the tidal flat and salt marsh adjacent to the Oer-IJ.

For the two millennia here touched upon, there are two important layers of natural sediments overlying general Calais IVb sediments of sand and clay into which the Oer-IJ cut: the Duinkerke 0 (D0) and Duinkerke I (D1). These have been used as general guidelines in the field, as natural stratigraphy, in affording general periodization of cultural traces for areas near to the main estuarine channel and tributaries. Duinkerke 0 layers, deposited c. 1400–1200 BC, separate the earlier from the later Bronze Age-Early/Middle

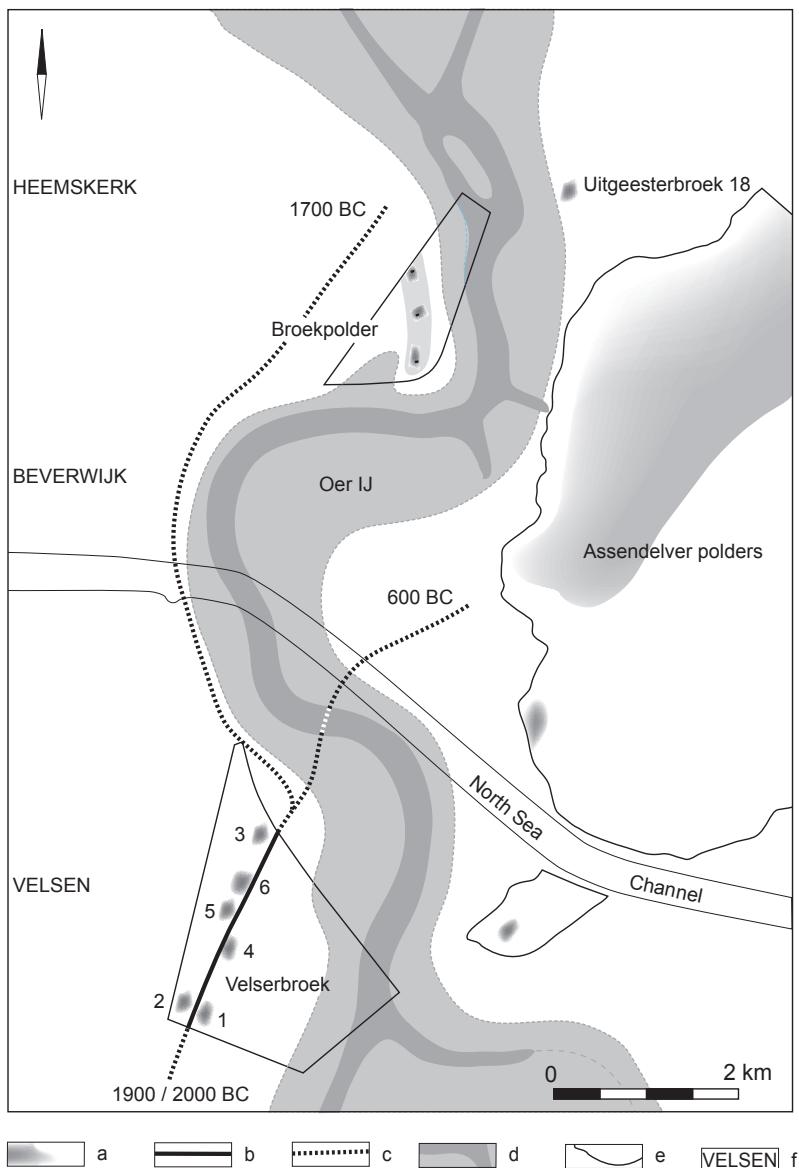


Fig. 12.1 Part of the Oer-IJ region. Excavations discussed in the text: use at areas 1-6 arose in Bronze Age to later periods and the proposed trackway trajectory (b) is based on a length actually recovered. Prehistoric trackways are also suggested (c) leading to other areas based on earliest traces recovered in the Broekpolder and Assendelver polders. The most prominent landscape feature of Oer-IJ estuarine channel (d) is shown for the period of about 1000 BC (based on Vos and Soonius in Lange et al. 2004). Modern polder designations (e) and names of the municipalities (f) are also shown

Iron Age. Higher-lying Duinkerke I sedimentation ended by around 200 BC, thus encapsulating a shorter period of only about 200–300 years and also divides periods of peat accumulation.

The stratigraphy was clear for all of the excavated areas mentioned below. The preservation of materials was excellent through the above-sketched Holocene geology, but less so if traces were situated on the somewhat higher-lying dune sands. The area was generally protected by heavy covering clays (Duinkerke III) deposited in the 13th century A.D. and the water table was high up to the time of excavation. Importantly, all of the areas were grassland from the late prehistoric or Early Medieval

period onwards, up to modern activities threatening past and buried landscapes.

All of the traces here discussed are derived from rescue excavations, most of which have appeared only as short interim reports in Dutch. This paper therefore also attempts to pull some of the findings together, as far as the interim state of research allows. It may be noticed that the further along in time from the late 1970's onwards, the greater is the excavated area. This is directly correlated to the growing amount of funding for archaeology, as well as an increasing interest in wetland archaeology within the Netherlands and perhaps a better appreciation of interpretational advantages afforded by stacked landscapes.<sup>2</sup>

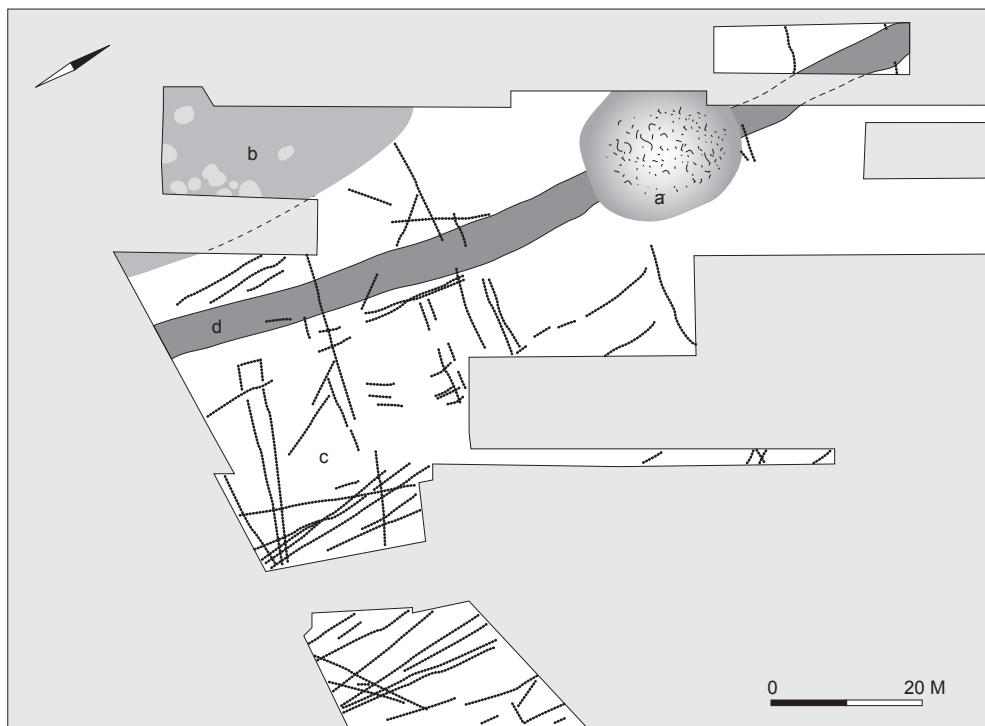


Fig. 12.2 Location 1 (Fig. 12.1: 1) within the Velserbroek: The extent of the last phase of a Velserbroek barrow (a) with pits in a low lying area (b). With no chronological succession implied, the lines of stakeholes (c) and the recovered trackway (d) are also shown. The features (a-d) arose from the Early Bronze Age onwards (from Therkorn and Van Londen 1990)

### **Velserbroek: initial users and their traces**

The Velserbroek is a c. 320 ha polder where a total of ten rescue excavations were carried out between 1976 and 2000. Only six of these areas (Fig. 12.1) will be touched upon below to examine some general points. The polder is to the east of the coastal dunes, to the south and west of the main estuarine channel of the Oer-IJ and to the north of the coastal barrier of Haarlem.

Only six Bronze Age barrows have been recognized within the Oer-IJ region and they were all situated in the Velserbroek polder. The apparently earliest barrow is located on the southern edge of the polder (Fig. 12.1: 1) and this will be given the most attention due to the combination of activities arising around it during the Bronze Age. Brief descriptions of the barrows and activities carried out around them are then followed by summaries of Bronze Age use found at other excavations, with good indications that all were joined by a trackway.

#### **An initial Late Neolithic/Early Bronze Age barrow and first traces of use**

By about 2000 BC, the northern end of the coastal barrier of Haarlem had been covered by 40 cm of dune sand. No clay sediments of the Duinkerke 0 period were encountered anywhere within the main excavated area, or within trial trenches done to northeast. On top of dune sand, the first

traces of activity become visible within the Velserbroek (Fig. 12.1: 1; Fig. 12.2). The area was first marked with a multi-phased barrow (Fig. 12.2: a), when recovered still one meter high (Therkorn and Van Londen 1990; Otte 1991; Besselsen 1996).<sup>3</sup>

Although the barrow had been destroyed along the west by a Medieval-Modern ditch, about three-quarters could be examined. The primary grave was for a 30–40 years old male, 1.79 m tall, placed on sods in a flexed position on his left side, head to the north-northeast (Fig. 12.3). He had been buried without his feet and there were no grave gifts.<sup>4</sup> The grave-pit was lined on the long sides and 'foot' end with 6 cm thick oak planks. The bark side was to the inside and each plank had been smeared with fine clay. What appeared to have been a lid of bark, through the structure of the soil discolouration, covered the grave-pit. The latest tree rings of one of the planks lining the grave gave a <sup>14</sup>C-dating of c. 2130–1900 BC (GrN-16893: 3635 ± 30 BP).<sup>4</sup> The grave was covered with a low mound (30 cm high) measuring 18 m in diameter. This mound was made up of sand and 'sods'. The latter were extremely vague, as only a very thin (1 cm), humus-poor soil had developed.

Subsequently, the head of a 5 to 7 year old child was deposited in a small pit dug into the initial mound over the primary grave. There were at least four additions of mound material that increased the height of the barrow. The second and third consisted of clean white sand, each covered with a mantle of sods, with a better developed and



Fig. 12.3 The primary grave of a man, head to the north-northeast under the barrow (Fig. 12.2: a)

medium to humus rich soil, 3 cm thick. A scatter of sherds from a single Bell Beaker - representing about one-fifth of a complete vessel - was included within the third heightening of clean white sand. Two sherds recovered from the pit with a child's head appear to be from the same vessel.

A 50 cm in diameter and 70 cm deep, round pit had been dug into the centre of the final layer used to raise the mound and it was also positioned above the original grave. Although nothing was preserved in it, the pit could represent a large post-pit. If a substantial post had been raised to mark the barrow, it had been pulled as the barrow underwent further redesigning when a ring of (bluish) clay was laid around the perimeter of the mound on top of the final heightening. The (post-) pit on top of the mound was also purposefully packed with similar clay.

Subsequent features associated with the barrow mound were added through the remainder of the Bronze Age and presumably the Iron Age (dates are at this time unavailable). These later features consisted of digging shallow circular ring gullies into the mound and later an oval gully around the foot of the barrow mound, with an opening in the south and another indicated on the north (see below on the trackway). Deposits of cremated bone in small pits were also present, as well as spreads of charcoal on top of the mound. Activities up to the Early Medieval period are shown further by dug features and deposits surrounding the barrow within the excavated area. As earliest use is the subject of this short paper, rather than the long-term, these traces will not be further addressed here.

#### *Low-lying area with pits*

The earliest pits recovered had been dug 40 m to the southwest of the barrow within a low-lying area of a silted-up pool (Fig. 12.2: b). They are undoubtedly contemporary with the first centuries of adding to and redesigning the barrow.

The stratigraphically earliest pit contained a deposited bull's skull. An oval container made of bark and willow, which was complete when deposited, but damaged at one end during excavation, had been placed on the bull's right horn (Fig. 12.4). First year willow from the container gave a rather broad dating between 2140 and 1690 BC (GrN-16895: 3560 ± 70 BP). Only one pit here contained a large deposit, otherwise: the skeleton of a bovine, without lower legs or skull (not the skull of Fig. 12.4). The other pits, up to one meter deep, in this area contained a few deposits, but a selection of animal remains and most notably unworked wood (including juniper, yew, oak, hazel), as well as pebbles. These pits had been back-filled after deposits had been made. However, the stratigraphically latest pit of the Bronze Age in this same low-lying area contained a wattle-work construction of alder and willow (Fig. 12.5) set into it. In contrast to the other pits with redeposited fill, the wattle-work construction had silted-up naturally and might be properly termed a well. It contained a bone awl in the lower silts. A withy gave a dating between 1540 and 1410 BC (GrN-16896: 3215 ± 30 BP). A well could possibly indicate a permanent settlement by this time in the adjacent, but unexcavated area.

#### *Sods, wattle fencing and cattle paths/raised trackway*

Early activities around the barrow were represented further by ard marks, lines and swarms of stakeholes and a series of cattle paths that became a proper trackway. No ard marks, stakeholes, or cattle paths were present underneath the barrow mound. The earliest ard marks within the excavation were not associated with a plough soil and they may have originated while stripping sods for the initial mound with thin undeveloped soil.

Lines of stakeholes, up to 30 m long, presumably represent wattle fencing. Only the clearest lines of stakeholes are shown schematically in Figure 12.2. There were dozens



*Fig. 12.4 The earliest pit within the cluster (Fig. 12.2: b) near to the barrow, contained deposits of the skull of a bull with an oval container (complete when deposited) of bark and willow on its horn*

more. The earliest fencing was broadly contemporary with the first cattle paths. These narrow paths formed an early bundle, 4–5 m wide, of overlapping traces, of which 105 m could be uncovered. During the course of use, these were filled-in. Others formed as occasionally the trajectory was raised by redeposited sand won from either side of the track. The heightened trackway, recovered 22 cm thick, extended to the foot of the barrow. The late oval gully around the mound had an opening here and another was indicated on the other side. That is, the paths and trackway led up to the barrow and then continued on the other side.

There was simply no clear ‘phasing’ between the paths/trackway and stakeholes discernable and one must conclude different activities – possibly yearly, seasonal activities – led

to the occurrence of overlapping features. The opening in the last phase gully of the barrow shows that the trackway was consciously integrated with this religious means of marking space, as were conversely subsistence activities associated with movements through the landscape of people and livestock. The track remained in use at least into the Roman Iron Age, if not later, linking space and time from the Bronze Age onwards. It extends from the south, from the higher-lying coastal barrier of Haarlem, towards a group of barrows in the north.

#### ***A Middle Bronze Age barrow and possible housing***

First, however, a few remarks about the ‘richest’ grave

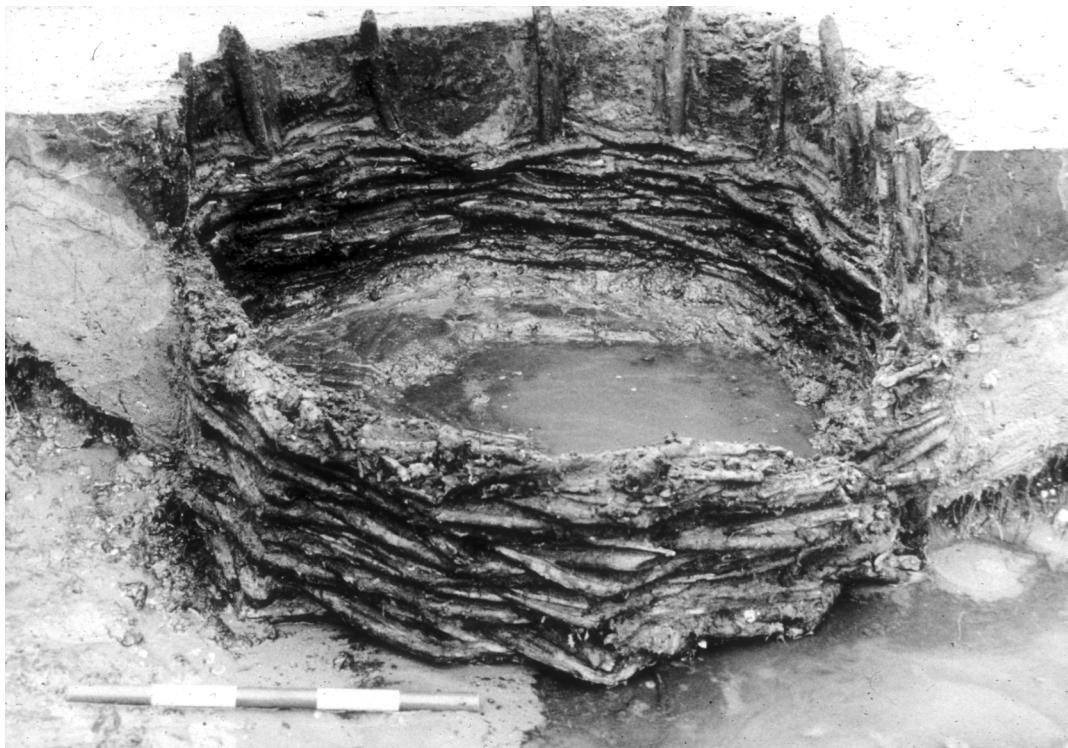


Fig. 12.5 A wattle well, shown here with the surrounding pit fill removed, within the area of pits (Fig. 12.2: b)

recovered within the province. About 200 m to the northwest-west of the Late Neolithic/Early Bronze Age barrow, what was probably a barrow (Fig. 12.1: 2) was constructed in the southern part of the Velserbroek (Bosman and Soonius 1990). The primary grave could date to c. 1400–1300 BC, based on the recovered grave goods. They consisted of an Osthanover palstave, a bronze rapier from southern Germany and four double gold wire, spiral rings, of which three were interlocked (Butler and Steegstra 1997–1998, cat. no. 190). The traces of a wooden rectangular structure are interpreted as a bier on which the body (very poorly preserved) had been placed. This presumed barrow (no mound was noted) was investigated under trying circumstances and no information on later phases than the primary grave were obtained. As such, it remains unknown if the site became a focal point for adding later features and deposits. There were fields and two structures adjacent, on the north. These traces are not (yet)  $^{14}\text{C}$ -dated, so conclusions remain very tentative on absolute and relative chronology. The excavators relate the farmstead to the ‘Middle Bronze Age’ in an interim report and do imply contemporaneity with the barrow (cf. Bosman and Soonius 1990).

#### ***A group of barrows in the north***

Extending the trajectory of that part of the trackway actually recovered and spatially associated with the Late Neolithic/Early Bronze Age barrow, one arrives at a group of four barrows about 2 km distant in the north of the Velserbroek

(Fig. 12.1: 3). These barrows were situated on the edge of the dune sand and as a group aligned northwest-southeast. The tops were eroded and they had been covered with wind-blown sand. Woltering (1979) estimates a difference in original height of 2–2.5 m from the top of the earliest mound and adjacent lower-lying area. This area had traces of arable (with one Barbed Wire Beaker / Wikkeldraadbeker sherd), postholes and pits sealed by clay sediments (Duinkerke 0) and later features extending into the Roman Iron Age.

The earliest barrow of the group had six or seven inhumation graves. Woltering considers the primary grave as probably that under the centre of the mound: an oval pit containing a skeleton in flexed position on its right side, head to the east. Barbed Wire Beaker (Wikkeldraadbeker) sherds were recovered from the mound material. Considered to be later was a ring gully (diameter c. 15 m), probably followed by a closely set circle of postholes (diameter c. 10 m). Centrally placed within the ring of posts was a pit with cremation remains. The excavator dates earliest use of this barrow to between 3650 BP and 3450 BP, thus between about 2150–1500 BC (Woltering 1979). No traces of activities were noted under the mound other than those associated with the burials and circular features.

Two adjacent and later barrows were raised on cultivated soil and had phases of heightening as well as dug features. Human remains were in the form of scatterings of four cremations, one associated with a fragment of a bronze (arm)ring. One of these barrows had a double circle of posts (outer diameter 5 m) set during the earliest phase. Mound material contained clay, which Woltering attributes

to Duinkerke 0 sedimentation having already occurred. Little could be noted for the fourth barrow, which had been raised adjacent to the earliest, as it had been largely destroyed during construction activities.

### ***Direction of landscape marking as chronology***

Both this group and that Late Neolithic/Early Bronze Age barrow in the south have evidence in common of long-term use in redesigning and additions. If one dares to narrow down the chronology through sherds, the initial barrow of the group in the north is later than that in the south. Assuming the direction of taking the Velserbroek area into use is commensurate with the initial marking with barrows, the Velserbroek trackway indicates from whence the first barrow builders and presumably the first users of the area arrived: from the higher-lying coastal barrier of Haarlem to the south of the Velserbroek. There may well be more tumuli along the western side of the Oer-IJ and the observed spacing of about 2 km between barrows within the Velserbroek might be useful in attempting to locate these further in the direction of the Broekpolder, along the edge of early dune sands and salt marsh.

### **Excavations and earliest traces along the trackway**

Returning to the trackway and its trajectory - a line based on the actually recovered 105 m - and the earliest barrow in the south, brief descriptions of land use can be given of excavated areas lying adjacent to the trackway trajectory interconnecting the landscape, towards the barrow group in the north.

#### ***Velserbroek-P63: arable and livestock enclosure***

Eight hundred meters to the north of the earliest barrow, a total of 0.34 ha could be excavated, between already dug foundation trenches for the modern roads. The variety of traces and stratigraphy over a 1 ha area could be somewhat examined (Therkorn 1987a). Features were concentrated on a 90 m wide, north-south dune (Fig. 12.1: 4; Fig. 12.6). There was a difference of 80 cm between the dune top and the area off the slope. This lower-lying area had a well-preserved stratigraphy, including deposits of Duinkerke 0 clay covering the earliest traces. On the top of the dune, the main phasing was also clear through fills of varying types, reflecting soil development and landscape use, as well as through over-cuttings of dug features.

The initial phase consisted of ard marks that were associated with a very poorly developed, thin soil over the dune. A large enclosure was erected somewhat later. It 'looked' like a palisade when first uncovered (Fig. 12.6: a; Fig. 12.7). But, on further examination, these traces were depressions over a double row, 40 cm apart, of clear stakeholes 4–5 cm in diameter, placed at 30 cm intervals.

Wattle fencing is probably indicated. Assumed is that the enclosure was continuous around the north-eastern side, whereby 0.7 ha would have been enclosed around three sides.

Brushwood may have infilled the double row of stakes or wattle fencing. An alternating or sequential use of the enclosure as arable and as an enclosure for livestock might be likely. The enclosure was dismantled, rather than having rotted away, as is shown by the deformation of the double lines of stakeholes and lack of preserved wood. The only material available for dating were plant remains from the general (Duinkerke 0) layer off the slope and that also sealed the enclosure stakeholes: between 1510 to 1110 BC (GrN-14689: 3070 ± 80 BP).

A burial of a 5–6 year old bull, in a deep pit on top of the dune (Fig. 12.6: b) could also belong to this early use, depending on the dating of the enclosure. The bull was buried between 1430 and 1250 BC (GrN-14690: 3070 ± 35 BP). A round, green, fine-grained stone of 4 cm in diameter was deposited with it. Although it is not clear whether the bull burial dates to the enclosure phase or subsequent use, it does represent a significant act marking this relatively high area.

Off the slope and sealed by Duinkerke 0 sediments was a pit with two large oak posts, 23 cm and 37 cm in diameter, of which 60 cm was preserved (fig 6: c; Fig. 12.8). How high they extended above-ground is of course not known, but a form of marking could also be suggested in addition to more mundane use such as rubbing-posts for cattle. The posts are excessively large for simply a 'functional' interpretation; oak would not be available in the vicinity and some symbolic importance can be assumed.

The posts were set between a pair of gullies (Fig. 12.6: d), one of which yielded a deposit of a complete dog skull. The gullies may have been connected to the main trackway coming from the south, either directly from the Velserbroek-1 barrow site, or as an offshoot from it. In successive phases, the two gullies were re-dug at least four times along the same course, after short periods of flooding associated with the Duinkerke 0. Peaty material from the latest fill was dated to between 1320 and 1050 BC (GrN-14688: 2970 ± 35 BP).

Permanent settlement at Velserbroek-P63 occurred thereafter. The top of the dune had become the site of several sequentially built farmhouses. There were traces - albeit confused by Bronze Age and later pits, a Medieval ditch and recent roads - of at least five longhouses and plots of wattle fencing. It is unclear if occupation was continuous. The recovered length of the earliest farmhouse is shown in Figure 12.6. Cultivation occurred here after permanent settlement ceased. Plough soil over the traces of the farmhouses is dated to between 1040 and 840 BC and may of course have included churned up settlement debris (GrN-14687: 2795 ± 35). After use for cultivation, the area evidently reverted to grassland and was also a place where sods were won. This was indicated by the decapitated section, the fill of very humus-rich soil in the



Fig. 12.6 Location 4 (Fig. 12.1: 4) within the Velserbroek: Schematic plan of all prehistoric features with postholes/stakeholes shown in black. Indicated is the surmised course of an enclosure (a), position of bull burial (b), large oak posts (c), gullies possibly of the trackway (d) and area of the plan of the first farmhouse (e). A wide Medieval ditch (between d-b) had destroyed prehistoric features

cut marks and the fill of the latest pit features. A tentative dating by sherds indicates the Late Bronze Age, but this must be further specified.

### ***Velserbroek-Rugbyveld***

Five hundred meters to the north of Velserbroek-P63, an excavation of less than 0.25 ha showed various phases of ard marks associated with layers of cultivation soil (Fig. 12.1: 5). Later, a three-aisled, multi-phased structure at least 15 m long has been interpreted as a house. On the basis of the associated pottery, the structure is dated within the Late Bronze Age (Beemster and Brandt 1986; Brandt 1988, 69).

### ***Velserbroek-Hofgeest***

Two ha were excavated (Perger and Hendrichs 1991; Hendrichs 1992) another 250 m to the north (Fig. 12.1: 6). A 2.50 m deep stratigraphy preserved traces of use from at least the Early Bronze Age onwards (Fig. 12.9).

The earliest traces recovered were cattle hoof prints through thin dune sand on clayey-sand Calais IV sediments. This cattle could have been Late Neolithic/Early Bronze Age. The traces were followed by a phase of arable. The first dug feature was an enclosure formed by a multi-phase,

2 m wide ditch, which was only partially excavated due to modern roads along the east and south of the excavation (Fig. 12.10). What exactly was enclosed thus remains unknown, aside from a cluster of pits. Later, a well-developed plough soil, 35 cm thick, through the years enriched with redeposited sods and other organic matter, which might indicate a permanent settlement, was in the near vicinity by somewhere around 1000 BC, but there were no traces of housing found within the excavated area.

Dating to the Early Iron Age, a more complete farmstead complex was recovered and included an area of cultivated fields, pastureland (with pits and deposits) and a farmhouse. A trackway coming from the southeast led up to the house plot where it stopped (Therkorn 2004, 130–132). It may be assumed that it branched off from the main trajectory linking the above-mentioned areas within the Velserbroek.

### ***Barrows: use to settled land***

The group of barrows described earlier above (Fig. 12.1: 3) is less than 400 m distant further to the north and activities were still being carried out there presumably through the Iron Age. There were scattered cremation remains associated with the later barrows of this group. Dating must still be established for these latest human remains,



Fig. 12.7 A length of the double row of depressions covering stakeholes forming the enclosure at location 4 (Fig. 12.6: a)

something also applying to remains of the latest features of the barrow in the south (Fig. 12.2: a). The latest use of the barrows must be connected with the continued use of the area and Iron Age inhabitants, as they are witnessed through their housing.

The landscape in between the barrows of the Velserbroek was permanently inhabited at the latest by 900 BC or four to five centuries earlier, depending on the dating of the (dwelling)structure near the barrow with rich grave goods (Fig. 12.1: 2) and/or if the wattle well (Fig. 12.1: 2) indicates a farmhouse in the vicinity. In any case, at least five centuries of use appear to have preceded permanent settlement as far as the small windows on this landscape indicate at this time. Apparently, the two barrows in south and north were the first constructed additions to the natural landscape of the Velserbroek area. Use as grazing grounds might have preceded them, but this depends on dating of the cattle that left their hoof prints in Calais IV sediments. But again there were no cattle paths or disturbed layers

under the initial barrow in the south. Ard marks and arable are demonstrated generally early on.

### The Broekpolder

It is pure supposition that the main trackway of the Velserbroek continued along the trajectory shown in Figure 12.1. But the barrow group in the north was aligned northwest-southeast and is perhaps as well a directional marker. The trajectory shown is also along the foot of the dunes and the higher salt marsh along the Oer-IJ. Middle Bronze Age and later find spots have long been recognized on the higher and densely built-up, coastal barrier now covered by the cities of Beverwijk and Heemskerk (e.g. Wiegmans 1996).

Relatively recent and extensive (12.6 ha) excavations within the Broekpolder (Fig. 12.1: 7), closer to the Oer-IJ channel have yielded traces of the Early Bronze Age /

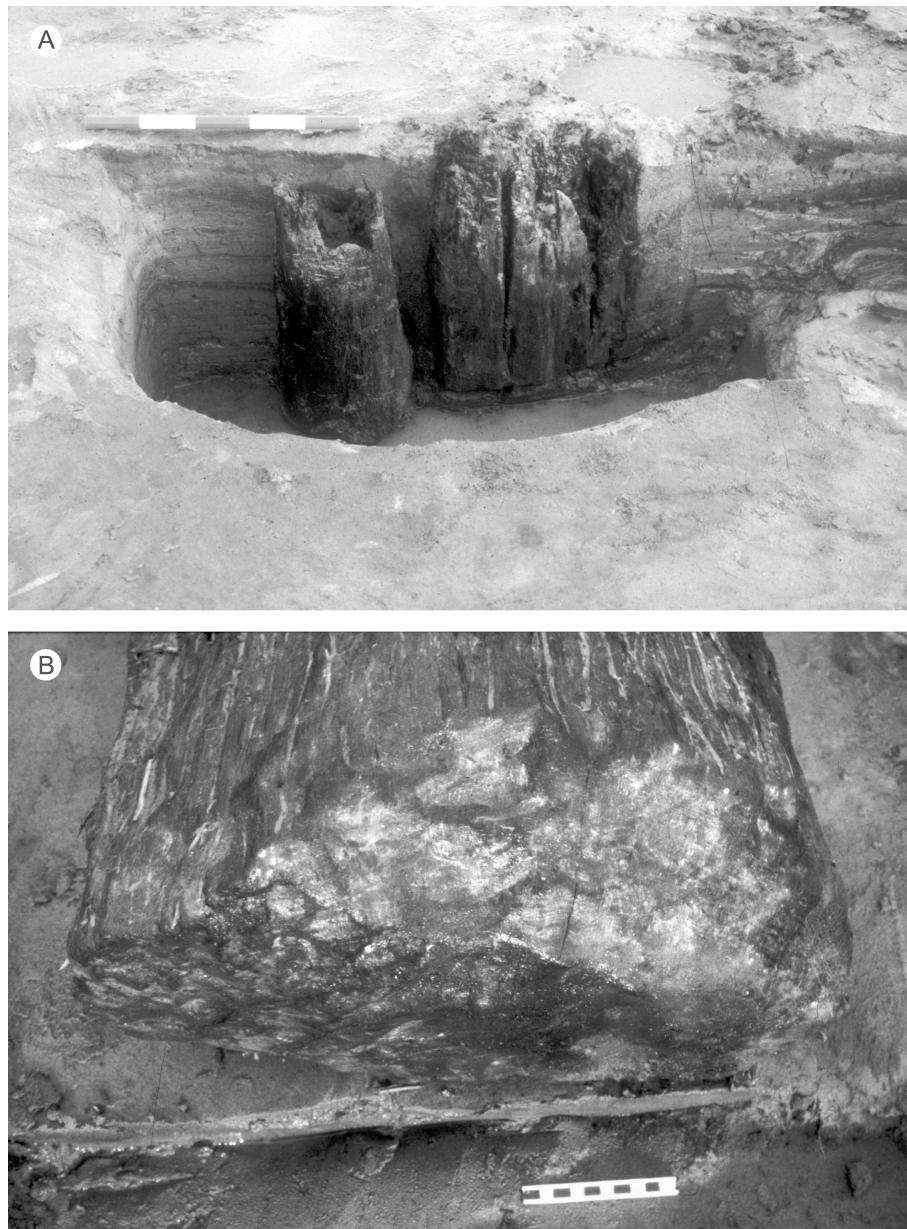


Fig. 12.8 Oak posts, as recovered, and the underside of that on the right showing chop marks, location 4 (Fig. 12.6: c)

Middle Bronze Age onwards (Therkorn *et al.* forthcoming). The earliest traces of activity recovered were hoof prints representing cattle travelling back and forth between the high salt marsh and the lower-lying tidal flats adjacent to the Oer-IJ channel. They date somewhere between 1935 and 1617 BC (KIA-14277:  $3837 \pm 39$  BP, KIA-14278:  $3760 \pm 46$  BP). The salt marsh ridge, fossilized within the Broekpolder, also showed ard marks under a thin but developed plough soil dated by humic acids to the period 1750 -1600 BC (KIA-9492:  $3160 \pm 50$  BP). A wide ditch, re-dug after sedimentation by flooding, at the edge of one excavated area was possibly part of an enclosure. There were a few other dug features associated with the plough soil. These filled-in during one flood and they were not re-

dug. Part of the area was used for crop cultivation during the Early Iron Age, but the first farmhouse and associated features date to c. 400 BC (Therkorn *et al.* forthcoming).

### The Assendelver polder and Uitgeesterbroek polder

The Assendelver polder excavations and that at Uitgeesterbroek polder 18 - to the east of the Oer-IJ channel (Fig. 12.1) - are briefly mentioned here because of the similar way land was taken into use. The earliest traces in these two areas are later than those recovered in the Velserbroek and Broekpolder.

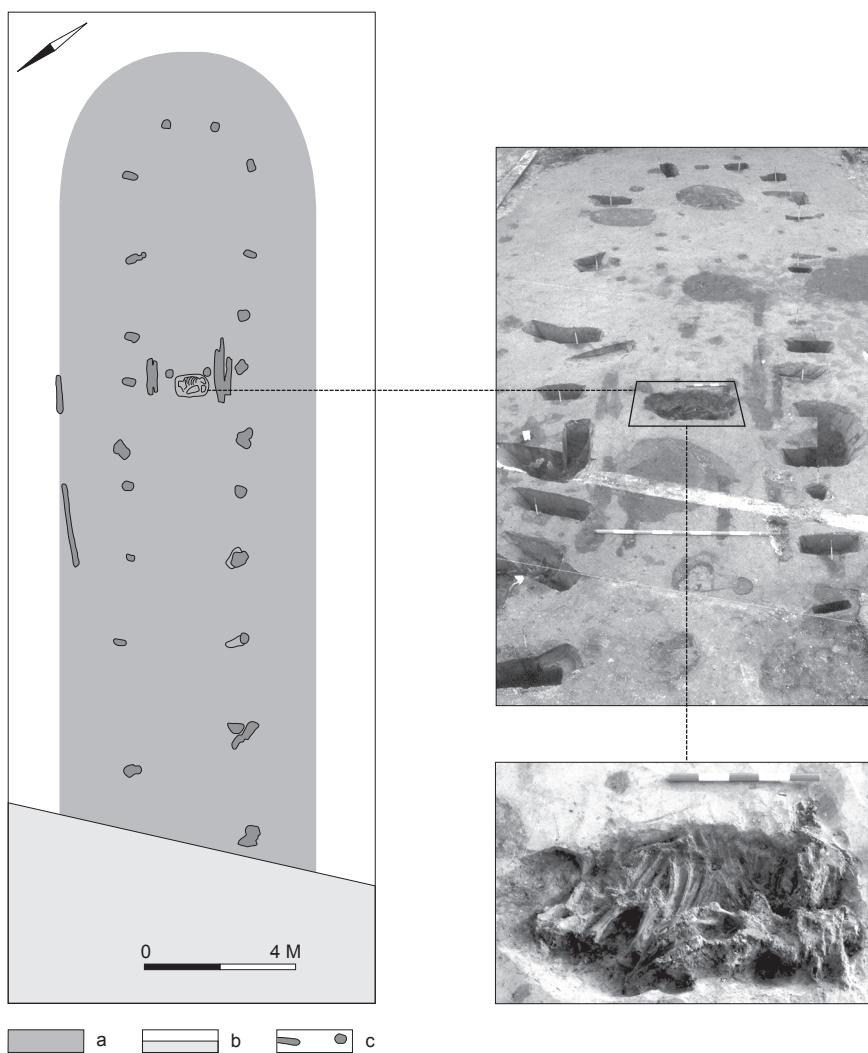


Fig. 12.9 Location 4: The surmised area (a) covered by the earliest farmhouse, disturbed by the modern road trench (b). The double row of principal posts and the contemporary gullies or slots are shown (c). Also considered contemporary with this farmhouse is a pit with deposits of two cattle skulls and a poorly preserved calf burial (lower right), probably situated at the threshold between dwelling and byre areas

Within the Assendelver polder (e.g. Brandt *et al.* 1987; Meffert 1998), permanent settlement was first in the southern part of the polder on peat. Just addressing this earliest recognized use, mention can be made of the c. 700 BC farmhouse (Therkorn *et al.* 1984). These inhabitants were winning sand for raising their dwelling floor from the sandy creek system at c. 400 m distant. The thick layers of dung in the byre area contained salt marsh micro-remains (*ibid.*). Inhabitants were then utilizing the salt marsh for gathering winter fodder, assuming livestock was stalled inside during the colder months only.

Eight excavations were carried out on some of the sandy creek deposits of the small tributaries of the main Oer-IJ channel. Only at one of the sites was the creek sectioned. Pottery and worked bone, probably deposited in the 4th century BC, was found deep in the creek bedding (Van Gijn 1987, 100). After the creeks tributaries had silted-up,

seven levee site excavations showed further use at least by the Late Iron Age. All showed large, ditched enclosures and these were usually accompanied by areas of ard marks and/or small garden plots. Permanent occupation on these creek levees occurred not until the 1st century AD. The higher-lying peat area to the east had been permanently occupied from c. 700 BC onwards. Inhabitants of the house sites recovered on peat were probably responsible for the initial traces associated with creeks, which were situated between 0.4 to 1 km distant (cf. Therkorn and Abbink 1987).

At the Uitgeesterbroek polder 18 (Fig. 12.1), 2 ha were excavated adjacent to the Oer-IJ channel (Therkorn 1989; 2004, 117–130). Guided by the Assendelver polder results, here creek beddings and the low-lying areas along the Oer-IJ were completely excavated. Three deposits of complete pots and bone were recovered in the lower sediments of

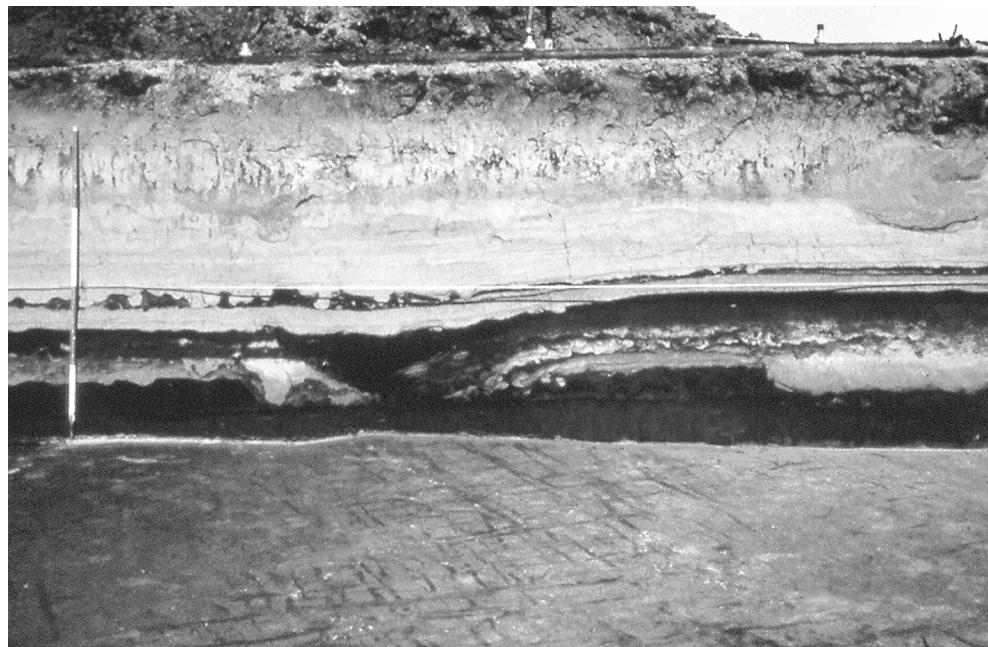


Fig. 12.10 Location 6 (Fig. 12.1): Short length of a 2.5 m deep section (scale on the left is 2 m). Visible at the bottom of the trench are Bronze Age ard marks with above (in section) the associated thick plough soil enriched with sods. An Early Iron Age farmstead complex was associated with the dried up swamp deposits higher up, c. 60 cm above the trench floor. The humic rich soil above is a remnant layer where sods had been cut and above that sandy layers had features relating to later periods

each of the creeks. Based on pottery decoration, the deposits were made around 300 BC. The creeks had silted-up completely by c. 200 BC. The earliest dug feature was a ditch enclosing c. 450 m<sup>2</sup>. This enclosure ditch was entirely filled-in during one flood, but it was completely re-dug, whereby the diggers reproduced the same shape and only slightly off-line in relation to the original ditch. A deposit of a large, complete vessel was recovered from one of the entrance terminals. A few patches of ard marks can be assigned to this period, as well. Permanent occupation did not take place here until the late 1st century BC/early 1st century AD.

### Concluding remarks

For the region, economic aspects of short distance transhumance and even fields at considerable distances from dwellings have been addressed particularly with regards to the later Assendelver sites (e.g. Brandt and Van Gijn 1986; Therkorn and Abbink 1987; Meffert 1998). For the Bronze Age, the subject has also been taken up for more northern areas of the province of Noord-Holland and also in relation to how areas were colonized (e.g. Bakker *et al.* 1977; Brandt 1988; Woltering 1997a; 1997b, 351–355; 2000).

Water in these areas as in the Oer-IJ region was the most prominent natural physical feature. Within the Oer-IJ region, there was probably only a difference, at most, of 2 meters between the border zone of dune and former tidal flats. In all, the areas mentioned in the above sections

were essentially new land gradually being utilized and then colonized within a traditional economy.

Tidal flats and salt marshes provided pasture and in combination, the <sup>14</sup>C-dates and scatters of sherds could indicate the earliest barrows were raised prior to and in phases of the first retrievable traces of cattle as hoof prints (Velserbroek-Hofgeest, Broekpolder) within the area. Within this physical environment, the two barrow areas of north and south within the Velserbroek may have been intervisible. Presumably joined by a trackway, this would be a rendition at a small scale of a long recognized connection between tumuli and roads / trackways decennia ago (e.g. Müller 1904; Modderman 1954) onwards (cf. e.g. summaries in Lange 1996; Bakker 2004) and along inland waterways and/or at the border of arable and edges of marshes (cf. e.g. Coles and Harding 1979, 290–292, 480). We have all aspects in the Velserbroek.

Also well established are the themes of mortuary monuments as being lineage, display and territorial markers referring to the past from the Saxe-Binford debate onwards (cf. discussion in Rakita and Buikstra 2005). Within the more post-processual present are interpretations of monuments and visibility, as viewscapes and suggestions of prominent places ‘undoubtedly steeped in ancestral associations, social memories and myth’ (Tilley 1994, 150). The analysis by Bradley (2002, 58–81) is especially interesting through regarding the remembrance of the past and past comprehensibility of landscape - including mounds, of various types, housing and enclosures - as interrelating the domains of the living and the dead in

‘terms of a sequence that grew out of the ruins of the past’ (Bradley 2002, 81).

We do not have ‘prominent places’ in the physical sense of the word in this region. This has its advantages. As more or less flat, new land, pride of place and thus prominence is shown by reiterating the presence of barrows for centuries in redesigning by heightening, perhaps generally by erecting single posts or circular post settings, and through digging features into and near to barrows. Ritual/religion is not physically separated from mundane (seasonal) activities within this region from the earliest traces onwards within a spatial intertwining of grazing grounds, enclosures for livestock, arable and the siting of barrows. But, as our sequence begins with new land, perceived through usefulness within traditional economic practice, there are no ‘ruins of the past’ to build on.

In the trackway, however, there is a suggested spatial linearity delimiting time in drawing the landscape together and its use. This can be expressed as ‘space-time versus activities-seasons’, as spaces become marked place, variously and probably for specific reasons. Situated at the border between higher- and lower-lying grounds, the barrows would mark permanency within a seasonally used landscape. Religious expression can then be seen as spatially combined with cyclical life. Presumably, for users/inhabitants, long-term cyclical expectations were ideas conjoining the worldly to the otherworldly. Moreover, subsistence facets take place in a landscape not initially permanently tenanted by the living, but by the dead. On new land, those first buried could be at the same time representations of the past and they would seem surely to signify expectations of a future: for coming economic purposes and settlement, as well as an afterlife.

All buried materials, as ritual deposits - including humans, livestock, parts of trees, pebbles and other goods - can be regarded as also important in this respect. These types of materials and how they mark landscapes have been most fully studied within the region for the later prehistoric period (600 BC–350 AD). Aspects touched upon include gender, orientations, seasonal cycles/economy and the otherworldly as the cosmology of landscapes (cf. Therkorn 2004). For the Bronze Age, these themes have yet to be fully considered in conjunction with these earlier and longer-term, traditions of users and inhabitants of the Oer-IJ region (but see Fontijn 2003; Fontijn and Bourgeois, this volume). They will be addressed in detail when the Velserbroek sites are fully published. Generalising on those few windows of the landscape, a few remarks can be made here on the horizontal and vertical dimensioning evident and somewhat with regards to a suggested, engendered landscape.

Within the vertical aspect, while barrows can be characterized through aspects of visibility and marking ground upwards, there is also the tradition early on of marking both high- and low-lying areas by making deposits in pits and backfilling the features. That is, there is a structural correlation evident through the spatially utilized horizontal

dimension as well as within downwards and upwards, at a very small spatial, but undoubtedly meaningful scale.

Males in graves (as far as could be determined and assumed through the weapons in the ‘rich’ grave) and bulls are associated both with upwards and downwards. The males/bulls are also associated with ‘trees’ in the form of standing posts and wood buried in pits, including the lining of thick oak planks in the grave-pit of the earliest barrow. The only complete container encountered in any Bronze Age feature of the Velserbroek excavations - the basket (Fig. 12.4) - was on the bull’s horn. Otherwise, containers in the form of pottery are encountered as scattered, broken vessels mainly in association with mounds of earth. Both vessels/clay and mounds could be signifying the female component of the landscape, whereby an equation could apply of males-tree trunks/tree branch deposits and females-mounds/partial pot deposits. Symbolic expressions of generative and especially regenerative themes could pertain to the placement of visible and buried materials in combination with seasonal, economic activities of the Bronze Age (Bloemers and Therkorn 2003, 14–16).

Exchange of materials between places was also clearly taking place and recovered as deposits, such as tree species and stones. The missing feet of the original, dead, permanent colonizer of the Velserbroek can be seen in terms of relics. As single bone elements they could have been deposited elsewhere (the permanent settlement?), as is known for later periods. Inverted, this could also apply to sherds recovered in the barrow mounds. If pots were made by women, parts of pots link the production area (the permanent settlement) with permanent barrow features on new land. They were also found in association with a child’s head in the barrow. Body parts (particularly skulls and feet) and body parts of vessels would sign towards linkages of places through the landscape as well as gender associations and generations.

Bradley (2002) has pointed out various discrepancies of typological dating and dating of when materials were actually deposited with regards to metalwork and beakers, for example. We know this for the Netherlands with regard to human single bone elements as well as Roman materials, deposited centuries later than their manufacture date (e.g. Volkers 1999; Therkorn *et al.* forthcoming). Refitting Bronze Age sherds across landscapes would be a worthwhile study for the region, as it has been proven for Roman sherds (Vons and Bosman 1988). Dating anything by sherds is probably inadvisable, especially with new dating techniques available.

Deposits of metalwork in open water are a well-known combination (Fontijn 2003) and within the Oer-IJ region Bronze Age a very few deposits of axes are also known (Kok forthcoming). In comparison and for the longer term, a partial structural inversion can be suggested by about 700 BC and continuing in the 1st century AD as witnessed through the deposit of complete pots, cows (and cow skulls) when marking land (cf. for some examples Therkorn 2004, 124–125, 135–137). Open water and dug,



Fig. 12.11 Location 6: That part of the 2 ha excavated area showing dug features of the Bronze Age including a multi-phased ditch and pits

back-filled pits seem to be the favoured contexts. Wood - as standing posts and deposited branches (in pits) - remains important, however.

Through a more specified dating, it should be possible to establish if for example post circles at barrow sites remained significant, visible markers to the Velserbroek side of the Oer-IJ from the Bronze Age onwards. The barrows of the Velserbroek were still being marked and presumably, there were more barrows to the west of the Broekpolder. Raising mounds may have been continuous, as shown by two examples of later periods within the Velserbroek. They were not raised over human burials or dwellings, but raised over an Early Iron Age calf and another over a setting of horseshoes in the medieval period (Therkorn 2004, 136, 115–116).

Other very modest but prominent constructions - dwellings - were not left to rot away in this flat landscape or anywhere within the region. We still connect them here with one family generation of about 20–25 years, based on post diameter, the few indications of post replacement, but regular indications for posts dug out of post-pits. As well, on the Velserbroek/Broekpolder side of the Oer-IJ channel, house plots were first used for arable and followed by arable.

For the period of 700 BC to at least 350 AD and to the other side of the Oer-IJ - the Assendelft side and further north within the province - the theme of marking upwards is witnessed at the site of the dismantled dwelling. Dwellings were buried under mounds. These mounds became the permanent landscape markers interweaving 'dead' houses, past generations and the shifting dwelling locations of families. It is a distinct tradition and it differs with regard to the treatment of past housing to the other side of the Oer-IJ.

Returning to the most prominent landscape feature of the

micro-region, the Oer-IJ channel itself, it does seem to have been a border between two groups by the Early Iron Age, for various reasons not gone into here, in addition to the mound theme. For the Early Bronze Age constructors and users of the barrows in the Velserbroek, following the track back to the south towards Haarlem might reveal where they had lived. The ford suggested over the channel (Fig. 12.1) to the Assendelft polder might apply as the direction from whence some settlers arrived there at least by the Early Iron Age. Another group may have just paddled up the Oer-IJ. There are certainly two traditions suggested by the building style of the earliest farmhouses in the Assendelft polders. Some examples adhere more to a Velserbroek style; mounds covering them were not distinguished (e.g. Hallewas 1971; Therkorn 1987b, 180–181). One farmhouse is a complete anomaly, even for the wider region. A paddle was deposited within the dwelling end before the first floor layer was laid (cf. Therkorn *et al.* 1984) and points to water in any case.<sup>5</sup> This example was covered by a mound, the first recovered example of many to dot the landscape and to mark past habitation sites through to the 4th century AD.

Peat is also a form of 'new land' and the suggestions of landscaping through building on the past are here also present, but in an inverted form (first the dwelling, then the mound) relative to the Velserbroek. The latest marking at the earliest Velserbroek barrow occurred in the 11th/12th century AD and consisted of a pit containing a finely worked knobbed staff/club of oak and a partial horse's jaw (Fig. 12.11).<sup>6</sup> As a very modest landscape feature and partially obscured by a peat accumulation, this barrow was evidently still prominent within (transformed) ideology, but as a place situated within Medieval grazing grounds.

## Notes

- 1 The excavations, aside from the barrows (Woltering 1979, for the State Service for Archaeological Investigations - ROB), took place within the Amsterdam Archaeological Centre's Oer-IJ Estuary Project, University of Amsterdam, supervised by Roel Brandt up to 1988 and thereafter by Tom Bloemers. The author was director of these excavations, except for that mentioned under Beemster and Brandt 1986 and Bosman and Soonius 1990. Financial support came primarily from the Prov. of Noord-Holland with additional funding provided by the University of Amsterdam and the municipality of Velsen. Drawings for this article have been done by Bob Donker, Jacqueline Oversteegen, Jos Kaarsemaker, Line Kramer and Jeffrey Slopsma. Photographs have been taken by the author, except that of Figure 12.10, which has been taken by Timo Perger.
- 2 Wim Bosman, then a local amateur archaeologist-geologist, instigated interest in the Velserbroek through his discovery of all of the sites mentioned for this polder area. During the 1980's the polder was transformed from pastureland into a large housing estate and Bosman's constant vigilance and coring, just ahead of and during building activities, led to the excavations by the State Service for Archaeological Investigations- ROB- and University of Amsterdam.
- 3 Various people gave advise in the field during this excavation. I would like to thank Jan Albert Bakker, Trinette Constandse-Westerman, Willy Groenman-van Waateringe, Leendert Louwe Kooijmans, Jan Lanting and Loes van Wijngaarden-Bakker. Subsequent identifications of ecological remains were carried out by Dirk van Smeerdijk (pollen en macro-remains), Jolanda Willemse (wood) and Jacqueline Oversteegen (bone). Use here has also been made of internal reports written by the students Elles Besselsen and Marco Otte.
- 4 All <sup>14</sup>C-dates were calibrated with OxCal 3.10. Only the 2-sigma range is presented here.
- 5 No mention of a mound was made in the publication and it was implied (through ill-understood effects/dating of flooding) that these inhabitants left because of the Duinkerke I transgression phase. In the intervening years, understanding has increased of the Assendelft peat area. The mound over the site Q dwelling is a reinterpretation, through a better look at the sections and by not ignoring the first layer encountered of the first excavated level of stacked, redeposited, oxidized turf over the house (cf. Therkorn *et al.* 1984, fig. 6: layer 4). Other mounds over dismantled structures in this same peat setting have also been recovered (Therkorn *et al.* 1998). There is also now no reason to assume habitation discontinuity within the peat area of the Assendelver polder.
- 6 Therkorn and Van Londen (1990) incorrectly mention a possible Iron Age dating for this pit. A subsequently gained <sup>14</sup>C-date of the oak staff/club puts the pit deposit within the Middle Ages (GrN-16897: 950 ± 25 BP, 98% range is 1020–1160 AD).

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# 13 The Early Bronze Age farmstead of Noordwijk

*Henk M. van der Velde*

## Introduction

In 1997 the National Service for Archaeology, Cultural Landscapes and Built Heritage (RACM) carried out rescue excavations at the location Bronsgeest in the village of Noordwijk (Fig. 13.1). A house plan dating to the Early Bronze Age was discovered. It was probably the first time in the Netherlands that a house plan from this period was accepted without reserve, although the precise structure remained a matter of debate.

The aim of this contribution is to describe the house plan in relation to its environment, associated outbuildings and field systems. Together they provide insight in the layout and material culture of a farmyard from the Early Bronze Age.<sup>1</sup>

## The excavation

The village of Noordwijk lies approximately 30 km north of The Hague in the province of Zuid-Holland. The archaeological site is located on a coastal dune dating from the Late Neolithic period. The investigated area (c. 5000 m<sup>2</sup>) was situated on a plateau on the eastern side of this dune.

The research started as a rescue excavation because the area was selected to be developed, threatening the archaeological site.<sup>2</sup> Trenches were dug on the spots where archaeological material had been brought up by coring. Although they failed to locate the actual settlement area, the investigators were able to establish the dimensions of the prehistoric arable fields (Oude Rengerink 1997). The discovery of the extraordinarily well-preserved house plan was completely unexpected. Unfortunately, it was not possible to excavate the entire site as part of it is still situated underneath a skating stadium. However, the

remains left there in situ may be presumed to be in an extremely good condition as well.

Although the actual house plan was very well preserved due to highly organic subsoil, most of the area was severely disturbed by sand drifting after the settlement was abandoned. The undisturbed remains were lying isolated within the drift sands. It may be presumed that the remains of some of the outbuildings have disappeared, due to the low organic content of the soil relative to that around the main building. Nevertheless, several other occupation areas could be identified, although their interpretation is unsure. One of them (area III) may hide the remains of another (main) building; some of the features of other areas may be ascribed to the remains of smaller buildings (Fig. 13.2). A well was not found and the number of pits is very small. Directly east of the house plan, the remains of small moor land were documented.

Because of the position of the house plan in relation to the other (possible) buildings and the reconstructed arable fields (see below), it is assumed that the excavated house plan is only one phase in the occupation of a farmstead that was used over several generations.

The field system was located directly south of the farmstead. Unfortunately, it was not possible to establish a direct link between the field system and the settlement area, due to the presence of drift sands. Because of the absence of younger finds and a radiocarbon date of overlying peat, the field system is assumed to be contemporary with the settlement area.

The total area of the arable land is estimated to have been 1.2 hectare. The fields could be identified through the presence of ard marks in an organic layer (Fig. 13.3). The organic component of this layer suggests that the farmers manured their fields, which is confirmed by the study of the

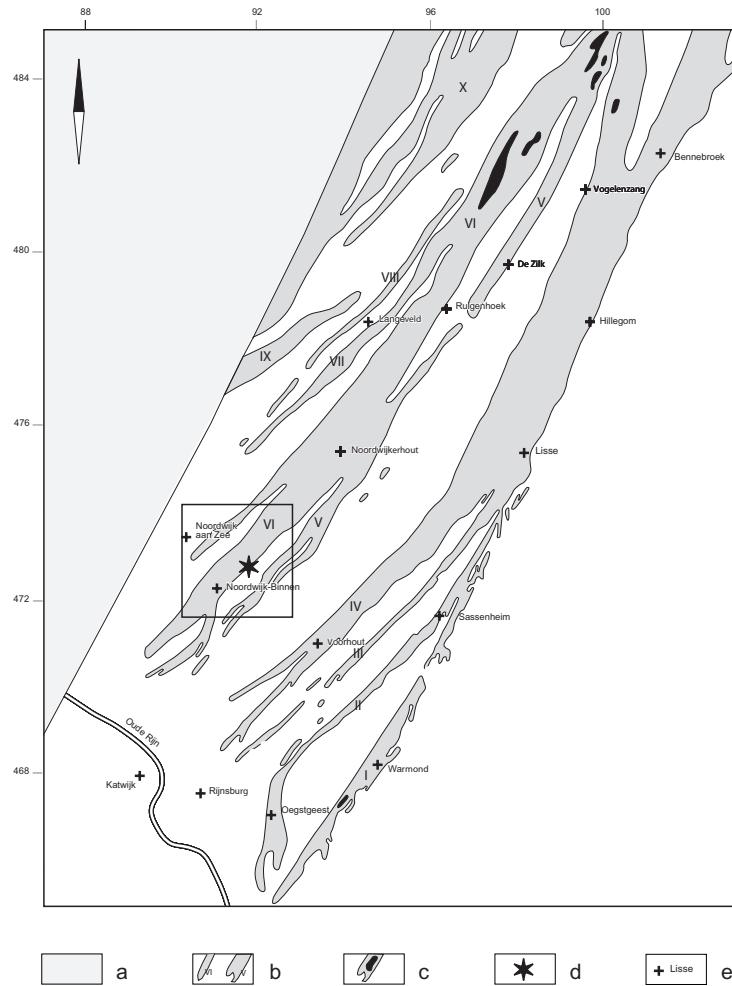


Fig. 12.1 The location of the settlement site of Noordwijk-Bronsgeest.

Legend: a: North Sea; b: Coastal dunes; c: Marshy depressions in and between coastal dunes; d: Noordwijk-Bronsgeest; e: Other Bronze Age find spots

paleo-ecological remains. Interesting (and quite unusual) was the find of bread wheat together with field weeds such as Curly-top Knotweed and Black Nightshade. Wheat cannot grow in poor sandy soils, like the coastal dunes of Noordwijk, unless it is manured.

Fences that could belong to the first phase the fields were used have not been found, but during a second phase some ditches were dug, dividing the fields into rectangular plots of 11 x 20 m and 20 x 20 m. Interestingly, these dimensions match the size of plots created by ploughing. The function of the trenches is unclear, although it seems plausible to interpret them in terms of water drainage. A sample of peat, covering one of the ditches, was dated to the Middle Bronze Age, indicating that the field system may antedate the Middle Bronze Age.

The field system is relatively small, which has led to the conclusion that the settlement area held only one farmstead at the time. The landscape around the farmyard had an open character. It is assumed that livestock played an important role in the economy of the farm's inhabitants; however, bone material was poorly preserved so any direct evidence for the existence of cattle is lost. The presence of

a variety of grasses indicates that the livestock could have been fed on grasses growing near the beach.

### The house plan from Noordwijk

Although initially the reconstruction of the main building seemed straightforward, a closer look showed that in fact many different layouts of the house were possible (Fig. 13.4, 13.5; Van Heeringen and Van der Velde 1999; Fokkens 2001; 2005). The present interpretation is the result of a reanalysis of the original field drawings and many discussions with various Dutch archaeologists.<sup>3</sup>

The house plan has (in its final stage) a length of 23 m and a width of 6 m. To support the roof, the house has a row of eight central posts. Except for a gap in the northern part of the house plan, the posts stood at a distance of 2 m from each other. The walls, which were slightly curved, consisted of single posts. It is striking that only a few of the wall posts actually line up with the central posts. This leads to the conclusion that the central posts were the main bearers of the roof.

The main wall posts are regularly spaced at 1.5 m from



Fig. 12.2 Noordwijk-Bronsgeest; overview of all the excavated remains.

Legend: a: Not excavated; b: Features; c: Zones with ard marks (shading) and ditches (black lines); d: Tentative outbuildings

each other. The outline of the southern wall shows signs of at least one renewal phase. Entrances are found in the northwestern, southeastern and in the centre of the southern wall. Intriguing is the presence of a series of inner posts in the central and western parts of the house plan, that show a relatively heavy foundation. East of the central entrance, four posts formed a rectangular construction to support the roof. In the western part of the house, a series of four pairs of inner posts divide the space into three aisles. These posts probably served to maintain the stability of the house. The rectangular structure resembles a construction found at a site from the Single Grave period nearby the village of Zeewijk, where it was also used in a monumental building (Hogestijn 2005, 431).

The postholes of the walls were covered by a humic layer that on some locations could not be distinguished from the filling of the larger pits within the building. Apart from comprising the majority (90%) of the finds, this layer also contained the remains of reeds, suggesting that the roof was thatched.

The finds were registered within square meter units (Fig. 13.6). The distribution of the finds and the locations of the pits within the house plan, suggests a compartmentalization of the building. Because of the size of the main building and the presence of animal bones in the find layer it is suggested this house plan comprised a byre and a living area. If this interpretation is correct, the western part possibly comprised a byre. The eastern part can than be interpreted as the living area; within this compartment most of the finds and pits were documented. Within this part,

two find clusters can be distinguished, suggesting that the inhabitants moved the living area at least once. Because of this, and because of the presence of some additional inner posts, it is possible that the original construction measured 18 m in length and was extended during its occupation.

### Dating of the settlement structures

Within the find assemblage a few flint barb-and-tang arrowheads were recognized, that are dated to the end of the Neolithic or the beginning of the Bronze Age. Besides, fragments were found of both Barbed Wire pottery and vessels of the Hilversum culture. The first group dated in the Early Bronze Age; the second came into use around 1800 BC.

Two  $^{14}\text{C}$ -samples from the postholes of the house plan and a peat sample from the eastern trench were dated.<sup>4</sup> The AMS-dates of the house plan range from 1980 to 1680 BC. The peat, covering the trench from the arable fields dated towards the end of the Late Bronze Age (2650 BP: 900–780 BC). Also a  $^{14}\text{C}$ -date from peat covering a nearby depression was dated (3270 BP: 1690–1430 BC). The dates suggest that from the beginning of the Middle Bronze Age until the Late Bronze Age the site became covered by peat.

On the basis of the settlement structures and the arable layers at least two habitation phases are proposed and most probable three or four. Most likely the habitation of the settlement ended because the fields drowned and became covered with peat.



Fig. 12.3 Noordwijk-Bronsgeest; photo of the ard marks to the south of the Early Bronze Age house plan

### Other Early Bronze Age house plans in the Netherlands

In contrast to those from the Middle Bronze Age, house plans dated from the Early Bronze Age are rarely recognised within the Netherlands and neighbouring areas. The building traditions during the Middle Bronze Age (especially Middle Bronze Age-B) can be said to have been more monumental than their predecessors.

Comparable plans are difficult to find. The plan from Lerenk (Bouwmeester, this volume), is not very convincing, neither are the plans that Verlinde excavated near Zwolle (Ittersumerbroek: Verlinde 1991). Waterbolk (1995) reinterpreted the site and reconstructed some two-aisled house plans. However, because they were not recognised during the fieldwork and Waterbolk gave no arguments other than that the house plans had to be two-aisled and that the wall posts had probably disappeared due to recent ploughing activities, these reconstructions are heavily disputed (cf. Fokkens 2001, 252).

The Dutch river area brought up similar discussions. Although wall posts are rarely recognised, the three-aisled house plans from the Middle Bronze Age are easily reconstructed, due to the more regular layout of the posts. In areas where three-aisled house plans have been identified, one may also expect to find their predecessors; the two-aisled house plans. However, if reconstructions of two-aisled house plans are proposed, they lead almost without exception to strong disagreements amongst archaeologists (cf. Meijlink and Kranendonk 2002; Arnoldussen in prep.). At the site De Bogen, municipality of Geldermalsen, the proposed house plan was accompanied by an appreciable quantity of pottery from the Late Neolithic and Early Bronze Age. In Rheden-Remmerden (Van Hoof, this volume) material from the Early Bronze Age was excavated and house plans

from the Middle Bronze Age were reconstructed. Recent views have made these proposed house plans contestable (cf. Van Hoof, this volume; Jongste *et al.* 2001).

Finally the settlement area in Molenaarsgraaf yielded two house plans. These are two-aisled and considered to date to the Early Bronze Age (Louwe Kooijmans 1974; Fokkens 2005). Their dimensions and boat-shaped form resemble the house plan from Noordwijk, although the Noordwijk house plan is more convincing than the structures recognised in Molenaarsgraaf, because the structure is not reconstructed from a palimpsest of features.

Can we conclude that the Netherlands were less densely inhabited during the Early Bronze Age or can the lack of two-aisled house plans from this period be ascribed to the fact that they were simply not recognised? It is understandable that two-aisled house plans are almost impossible to identify in areas covered with postholes from multiple habitation periods and it is clear from the above-mentioned examples that their reconstructions will rarely be accepted without discussion. The reason for the differences in number of sites between the Middle Bronze Age and the foregoing period should not too easily be sought in socio-economic factors (cf. Arnoldussen and Fontijn 2006). In fact, the data from Noordwijk and from some other potential Early Bronze Age sites stress the continuation of farming rather than the opposite.

### *The Noordwijk house plan compared to Neolithic and (Middle) Bronze Age building traditions*

Very few house plans from the Middle and Late Neolithic are known (Hogestijn and Drenth 2000). The Dutch, as well as the Scandinavian examples are characterised by a two-aisled structure. They also tend to be relatively small.



Fig. 12.4 Noordwijk-Bronsgeest; overview of all the remains in the area of the house plan. Legend: a: Not excavated and trenches with no features belonging to the house plan; b: Recently disturbed; c: Features associated with the house plan; d: Other features

The 22 m long Late Neolithic house plan from Zeewijk is an exception and is interpreted as a building with special, possibly ritual, purposes (Hogestijn 2005, 431). It is questionable whether byres were present within the buildings. Although it is possible that the Noordwijk plan comprised a byre, the plan does not present convincing evidence to solve this question either.

Some house plans from Hesel (Kreis Leer, Germany; Schwartz 1997) are divided in a two-aisled section and a three-aisled section. This could be interpreted as a gradual transition to the three-aisled plan of the Middle Bronze Age. The same may apply to the house plan from Noordwijk, where the presence of extra inner posts might represent a similar transition in design.

More comparable examples are known from Denmark and northwestern Germany (cf. Assendorp 1997). In Denmark many more remains of farmsteads from the Neolithic and Early Bronze Age were excavated than

in the Netherlands. Sites such as Hemmed Church and Hemmed Plantation (Jutland, Denmark) show a continuous tradition of large two-aisled house plans from the Late Neolithic to the Bronze Age (Boas 1991). Within the Danish archaeological record a change can be observed in the dimensions of house plans towards the end of the Middle Neolithic. Like the few house plans known from the Middle and Late Neolithic period in the Netherlands, they tend to be relatively small (cf. Boas 1991, 133; Hogestijn and Drenth 2000).

Reconstructions of house plans from Hemmed Church, Hemmed Plantation and Limensgård (Boas 1991; Nielsen and Nielsen 1985, 112) show remarkable similarities in the roof construction: central roof bearers with lateral links to the wall posts. Different, however, are the double rows of evenly spaced posts positioned in the long walls of the Noordwijk example.

The lack of data from the Early Bronze Age makes it

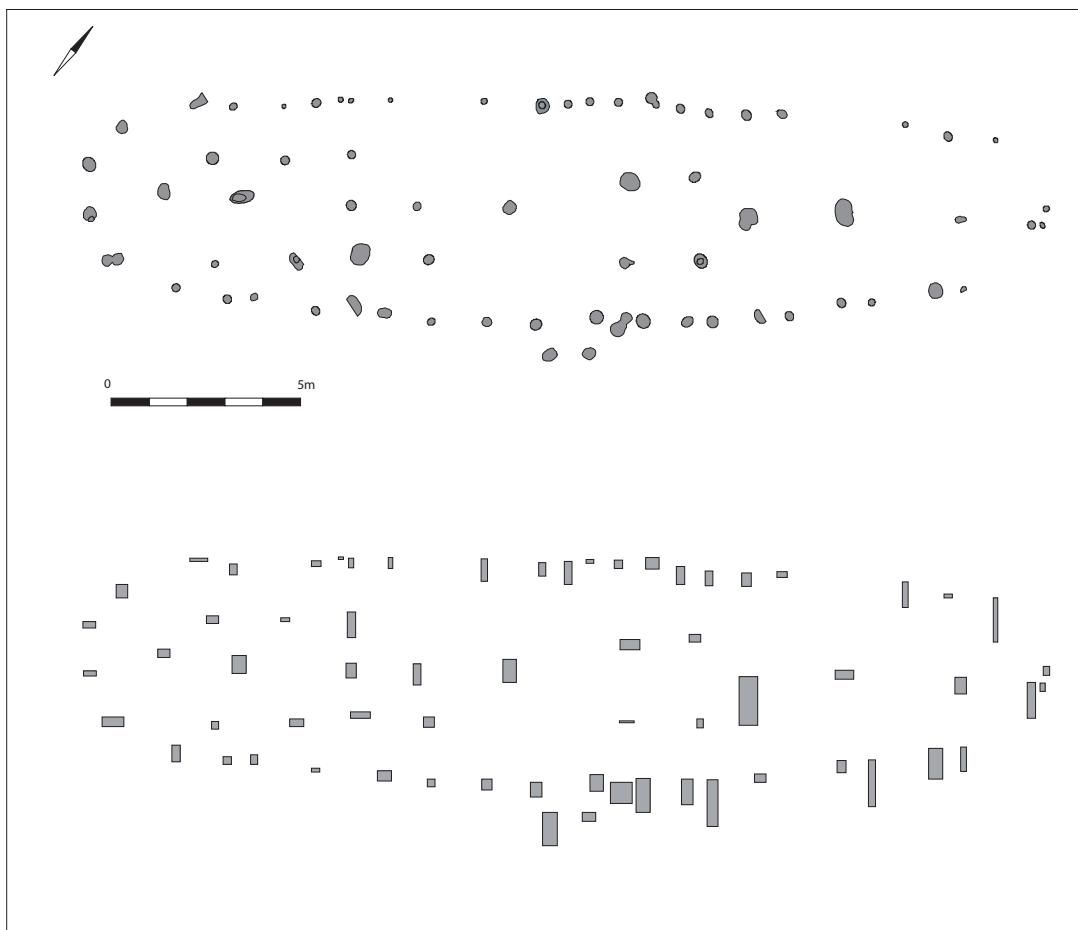


Fig. 12.5 Noordwijk-Bronsgeest; overview of all the features of the house plan (top) and their depth (below; vertical scale 1:50)

difficult to create a picture of 'daily life on the farm' for this period. Arnoldussen and Fontijn (2006) suggest that the house plans are generally different in character and seem to lack some kind of architectural design. The Noordwijk settlement however, although its information is limited, suggests that the differences between the two periods are not as marked as is generally thought. Not only is its house plan regular in layout, the organisation of the yard and the field system reflects the clear and intentional design typical for the Middle Bronze Age.

In conclusion, there seem to be close parallels in the development of house plans from the Late Neolithic to the Bronze Age in an area stretching from at least Denmark to the north of the Netherlands. The Noordwijk house fits well in this picture.

### Concluding remarks

In this paper, the settlement site of Noordwijk-Bronsgeest was used as a starting point for discussion about the cultural tradition of settlements dating from the Early Bronze Age. Because the farmstead of Noordwijk is perhaps the only settlement site yielding a house plan

within the Netherlands that can be dated to this period with certainty, the evidence, especially with regard to material culture, is not overwhelming. Nevertheless, some interesting observations can be made. The house plan is part of a single farmstead that can be dated to the latest phase of the Early Bronze Age. Probably no more than four occupation phases can be distinguished.

The layout of the house, its location and the surrounding field systems show a well-organized domestic and agricultural area within the landscape that is not necessarily different from that from the Middle Bronze Age. In fact, the ditches within the field system and the evidence for manuring point towards a rather sophisticated agricultural tradition.

Early Bronze Age house plans are extremely rare in the Netherlands. However, the Noordwijk house plan fits well into a northwest European house building tradition that is best studied, due to its larger sample size, in Denmark and Northern Germany. One can notice within the Danish record that towards the end of the Neolithic the houses became considerably longer. This may suggest the introduction of a byre within the design of houses. The presence of a house plan of considerable size, the differences within

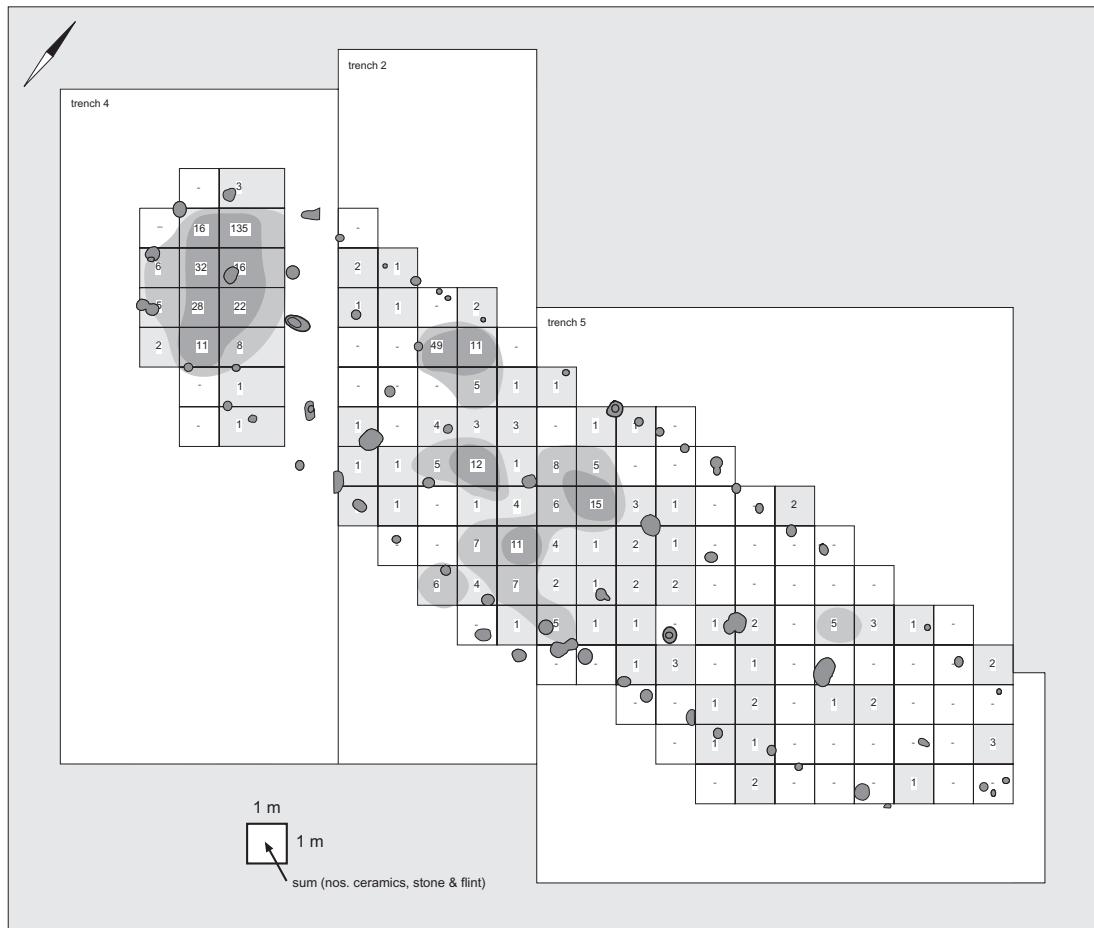


Fig. 12.6 Noordwijk-Bronsgaast; distribution of the finds within the house plan

the inner structure of the house plan and the indications for manuring of the arable fields suggest that a similar development took place in Noordwijk. In this respect it is interesting to notice the similarities in locations of houses and material culture within the archaeological record of some of the excavations in the Dutch river area (cf. Meteren-De Bogen and Rhenen-Remmerden) and Zwolle-Ittersumerbroek. Although a convincing reconstruction of the farmsteads is impossible, the agricultural traditions from the Early to the Middle Bronze Age presumably did not change that much.

In conclusion, the evidence from the Early Bronze Age in the Netherlands is too limited to draw far-reaching conclusions on the settlement and cultural use of the landscape during this period. Nevertheless, even when the visibility of the house plans, as mentioned above, is taken into account, it is clear that the differences between the Early and Middle Bronze Age are considerable. This is most likely the result of changing cultural traditions towards the end of the Early Bronze Age (Arnoldussen and Fontijn 2006).

## Notes

- 1 Many thanks to E. E. A. Lohof and S. B. C. Bloo (ADC ArcheoProjecten) for discussing this paper with me.
- 2 See for a detailed description of the finds and their context Van Heeringen and Van der Velde 1999.
- 3 The author wishes to express his gratitude to Prof. Dr. H.T. Waterbolk for his suggestions on the interpretation of the house plan.
- 4 GrA-9186, GrA-8519, GrA-8532.

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# 14 Bronze Age neighbours: occupation of three parallel coversand ridges near Breda

*Ria Berkvens*

## Introduction

This article focuses on the results of major archaeological investigations to the west of Breda, situated in the western part of Noord-Brabant. The work was prompted by plans to widen the A16 motorway, to create a business park and to extend the high-speed rail link (HSL). Several excavations were carried out between 1999 and 2002 by Breda City Council and by ADC Archaeoprojects commissioned by an HSL-Zuid/A16 consortium.

The sites and artefacts discovered are of great interest to the archaeology of the western region of the province of Noord-Brabant, a region about which, archaeologically, virtually nothing was known until the investigations discussed here commenced. Among the discoveries were Middle Bronze Age to Late Medieval settlements, late prehistoric burial sites and a complete military camp dating from the period of the Eighty Years' War (1568 – 1648 AD) (Koot and Berkvens 2004; Kranendonk *et al.* 2006). The investigations have highlighted the difficulty of outlining a single occupation history for the region delineated by the rivers Meuse, Scheldt and Demer. Not only are there differences between this region and eastern Noord-Brabant, even the differences between the HSL and Breda-West excavation areas, only a few kilometers apart, are remarkable.

The archaeological work consisted of two projects, one concentrating on the area of the planned business park Breda-West, the other on the proposed HSL and A16 routes (Fig. 14.1). A marked difference between these two projects was that, while in the course of the Breda-West Project several hectares were excavated, the HSL/A16 Project concentrated mainly on the relatively restricted areas defined by the rail link and motorway routes.

The HSL excavation was preceded by several research

studies of the local landscape and archaeological finds and field survey (Oude Rengerink 1997). Based on the results of these preliminary studies, the locations of Prinsenbeek, Westrik, Bierensweg, Bethlehemloop, Bagven, Vinkenburg and Effen-Noord were selected for closer test trenching and excavation, work that was carried out between 1999 and 2001. Most sites proved to be settlement sites datable to the Late Iron Age (300–12 BC) and Roman period. The archaeological investigations of the HSL were spatially restricted to the trajectory proper. Therefore, it is highly likely that sites extend beyond the investigated areas, making it virtually impossible to present clear statements regarding site size and layout.

The investigated locations at Breda-West are those of Steenakker, Huifakker, Emerakker and Moskes, corresponding to the local cover sand ridges that are separated by river brooks (Fig. 14.2). As these areas were allocated for use as business parks, here too, desktop studies and field survey were carried out (Leenders 1991; Scholte Lubberink 1995). The results of this preliminary work, combined with plans for the imminent construction of a new football stadium, prompted the first large-scale excavation at Emerakker in 1995. From 1997 onward, additional excavations were carried out at the other four locations, from which it became apparent that large-scale archaeological investigation was necessary. In order to obtain a clear picture of the occupation history and the development of the cultural landscape, it was decided to investigate as much as possible of the cover sand ridges where the settlement sites were expected, but also to investigate adjacent (lower lying) parts of the landscape to look for off-site phenomena.

The scale of the investigations does not allow for all Bronze Age occupation evidence to be discussed within

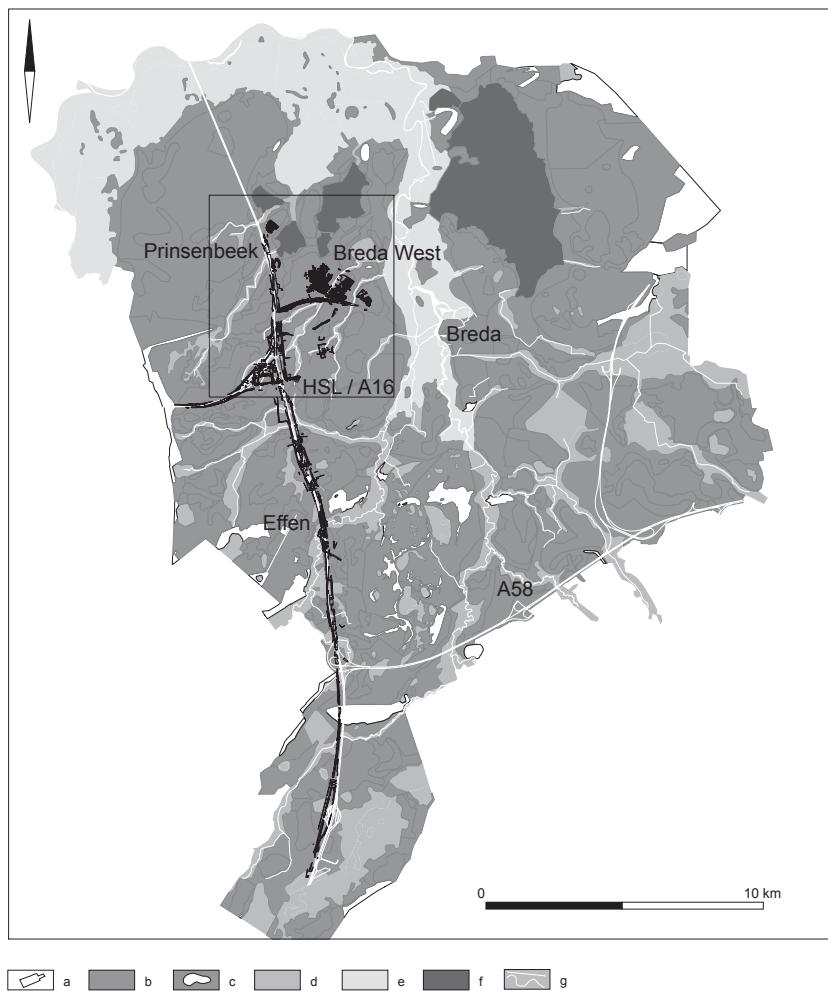


Fig. 14.1 Geography of Breda, locations of cover sand ridges and the Breda-West and HSL study areas. Legend: a: Excavations; b: Coversand; c: Dunes; d: Moor; e: Brook or river valley; f: Peat; g: Roads and brooks

the scope of this article. It therefore concentrates on the most significant evidence from Breda-West, dating to the Middle Bronze Age and the Late Bronze Age - Early Iron Age transition. In the text that follows, all  $^{14}\text{C}$ -dates have been calibrated using IntCal04 (Reimer *et al.* 2004) and OxCal 3.10 (Bronk Ramsay 2005; Table 14.1).

### Location of the sites within the wider landscape

The geology of the western part of the Meuse-Demer-Scheldt region, the West-Brabant Plateau, is characterised by Early Pleistocene fine sands and clays. In many places in the west of the province, these sediments appear at the surface. At Breda-West, however, the situation is markedly different. Sediments here consist of a several meters thick layer of loamy Older Cover Sand, overlying a layer of very fine loamy loess. These lithological differences between Breda-West and its surrounding area can be explained by the specific geomorphological history of this region.

Near Breda we find the so-called Valley of Breda, a 5 to 10 km wide valley with a south-north orientation, cut by rivers during the Early to Middle Pleistocene transition (c. 800.000 BP). At the onset of the last ice age, the Weichselian (c. 120.000 BP – 10.000 BP), this deep valley had been largely infilled with sands and clays. During the first half of the Weichselian, these layers were subsequently capped by sands deposited by winds and rivers of melting ice (Zagwijn 1993). The aeolian deposits consist of very fine loamy loess known as Brabant Loam. This largely impermeable layer affected the drainage capacities and therefore soil formation in the study area. During the final phase of the Middle Weichselian, i.e. the Late Pleniglacial, the climate was so cold and dry and the landscape so bare, that large-scale erosion occurred, leading to the aeolian deposition of a layer of loamy cover sand.<sup>1</sup>

It was during this period, the Late Pleniglacial, that the landscape of Breda-West obtained more or less its present appearance: the underlying relief was infilled and the prevailing winds created long northeast-southwest oriented cover sand ridges, between which streams sub-

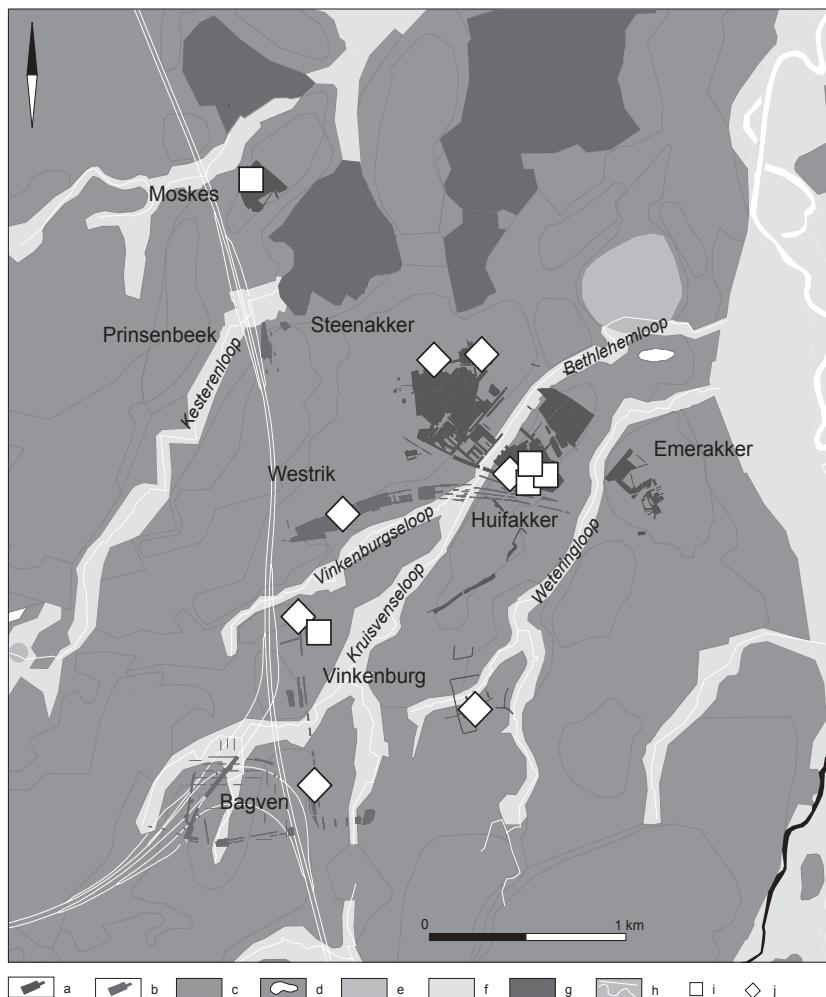


Fig. 14.2 Location of all Middle Bronze Age site concentrations west of Breda (HSL and Breda-West study areas) within the landscape. Legend: a: Trenches Breda-West; b: Trenches HSL / A16; c: Coversand; d: Dunes; e: Moor; f: Brook or river valley; g: Peat; h: Roads and brooks; i: House; j: Grave

sequently scoured out beds. During the Bølling and Allerød interstadials of the Late Glacial, soil formation began to occur in the cover sand. A parkland landscape arose with birch and pine forests. During the final phase of the Late Glacial, the climate deteriorated, leading to a more open parkland landscape of cover sand supporting a subarctic vegetation and soil formation ceased. In the course of the Holocene, dry soils (so-called haarpodzols) developed on higher ground, while in lower-lying areas, hydropodzols (veldpodzols) appeared. In the transitional zones between lower ground and stream valleys, humic peat soils developed. Soil formation, thus, was highly dependent on differences in altitude and on groundwater levels.

In due course, humans increasingly influenced the development of the landscape round Breda. In the Bronze Age, as a result of human intervention, the vegetation pattern changed from dense deciduous forests to open parkland (Brandenburgh and Kooistra 2004, 15–36). Also the first moorland began to develop. Brook valleys appear to have been densely afforested throughout prehistory,

although wet moorland may also have occurred. During the Bronze and Iron Ages, deforestation took place, particularly on the cover sand ridges, to clear the land for cultivation and pasture. Despite being nutrition-poor and acid, the cover sands were partly cultivated. Settlements were situated near wet and nutrition-rich soil types, while pasture seems to have been concentrated in wet zones, on the flanks of the cover sand ridges and in the river valleys.

The locations of Breda-West selected for archaeological investigation are situated on a number of southwest-north-east oriented cover sand ridges, separated by the valleys of rivulets such as the Kesterenloop, Bethlehemloop, the Vinkenburgloop and the Weteringloop (Fig. 14.2). In contrast to the characteristic erosion-prone and mineral-poor sands of the Meuse-Demer-Scheldt region, the cover sand region of Breda-West appears to be relatively nutrition-rich and stable. The determining factor here is the difference in composition of the cover sand. At Breda-West, unlike elsewhere, the mineral-poor Younger Cover Sand is absent, while the Older Cover Sand appears at the surface.

Lab. No.	Material	$^{14}\text{C}$ Age	Calibrated date*	
			$1\sigma$ (66.2%)	$2\sigma$ (95.4%)
AA-52384	Wood charcoal	3245±50 BP	1610–1570 (14.9%) cal. BC 1540–1450 (53.3%) cal. BC	1630–1410 (95.4%) cal. BC
AA-52390	Wood charcoal	2400±45 BP	710–690 (1.8%) cal. BC 540–390 (64.4%) cal. BC	750–680 (14.9%) cal. BC 670–630 (4.7%) cal. BC 600–390 (75.8%) cal. BC
AA-52391	Cereal grain	2490±45 BP	770–530 (66.2%) cal. BC	790–480 (88.2%) cal. BC 470–410 (6.6%) cal. BC
AA-52541	Wood charcoal	2700±40 BP	895–865 (24.2%) cal. BC 860–810 (44.0%) cal. BC	920–790 (95.4%) cal. BC
GrA-21247	Wood charcoal	3350±50 BP	1730–1710 (3.1%) cal. BC 1700–1600 (49.1%) cal. BC 1580–1530 (16.0%) cal. BC	1750–1510 (95.4%) cal. BC

Table 14.1 Radiocarbon dates

The top of the Older Cover Sand is loamy and contains large amounts of minerals that are highly susceptible to weathering, making it relatively fertile. Here, distinctive deep-brown soils developed, known to soil scientists as moder podzols. These podzols lack the clear stratigraphy observable in those formed in the nutrition-poorer sands. To prehistoric and historic farmers, these moder podzols must have constituted highly attractive soils; the loamy topsoil's water retention properties and the relative fertility of the cover sand ridges created suitable conditions for crop cultivation. The small differences in altitude and the favourable soil conditions in the region must have played a major role in people's choices of locations for settlements and fields. In addition, drainage will have been an important factor as well. Rather than depending on the present-day surface runoff, the drainage system relies on the relief and permeability of the underlying Brabant Loam (Kooistra 2001a; 2001b; Spek 1999).

## Occupation evidence

### Introduction

The occupation of Breda-West is clearly influenced by local environmental conditions. On the basis of reconstruction of the palaeorelief of the cover sand ridge it can be stated that from the Bronze Age until the Early Iron Age, settlement sites were mostly situated on the highest parts of the ridge.

Very small altitudinal differences appear to have determined the location and layout of sites. In the lower-lying and wetter zones of the landscape we find wells, making these areas archaeologically very valuable. The prehistoric houses are difficult to date, due to the fact that features yielded little dateable material such as pottery for relative dating or organic material for  $^{14}\text{C}$ -dating. Although remains from waterlogged features such as the above-mentioned wells can be dated, the spatial and therefore chronological

relationship of this material with the houses is difficult to establish. Considering that little is known regarding the size of the settlement site and the contemporaneity of house structures to surrounding features such as outbuildings, pits and wells, determining what a site may have looked like at any one time is no simple task.

However, during the Middle Bronze Age to the Early Iron Age, sites do not appear to have been used in the same manner or to have had the same appearance. Judging by the number of postholes, Middle Bronze Age houses were seldom surrounded by more than a handful of storage structures (granaries). Early Iron Age houses, by contrast, appear to have been surrounded by numerous outbuildings, presumably most of which had a storage function.

### Middle Bronze Age occupation evidence

Four Middle Bronze Age houses were found at Breda-West and a fifth one in the HSL project (Fig. 14.2). These could have been longhouses with a byre, housing animals as well as people, although evidence for stalling in the form of stall partitions is lacking. With the discovery of these five houses, the number of known Middle Bronze Age houses in western Noord-Brabant has risen steeply; before 1999, there was no undisputable evidence for Bronze Age settlement sites in this region. Indirect indicators of Bronze Age occupation, however, were the numerous barrows around Baarle-Nassau and Alphen and possibly at Tiggeltakker in Rijsbergen, immediately south of Breda (Verhagen 1984, 57, 68).

At the HSL/A16 excavations at Vinkenburg a pit and one possible house were dated to the Bronze Age. Here, a cluster of postholes and two parallel rows of postholes at 3m apart were tentatively interpreted as representative of a house. Partly due to a later ditch, which crosscuts the ground plan, unfortunately, many postholes are missing.

At Moskes, a three-aisled longhouse, 29 m in length, was excavated along with a possible outbuilding and two wells (Fig. 14.3: house 1). The structure of the farmhouse

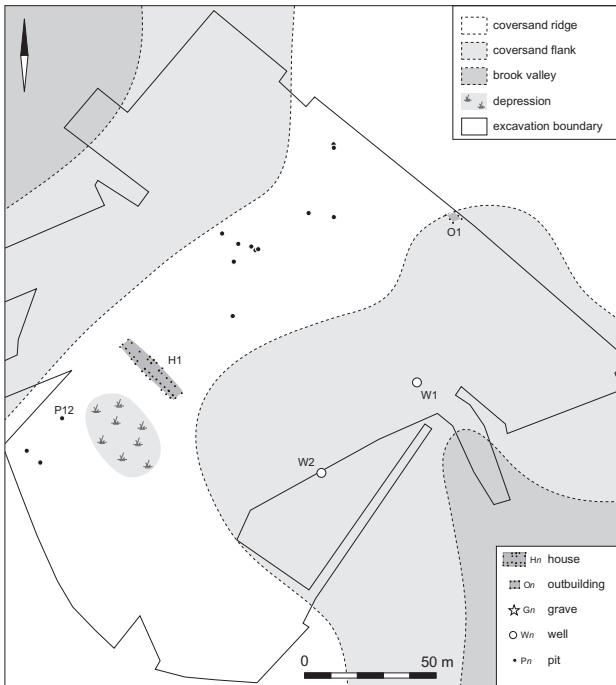


Fig. 14.3 Middle Bronze Age occupation evidence at Moskes

consists of four regular rows of posts. These inner- and outer posts presumably carried the rafters and were placed at regular intervals of 1.5 to 2 m. It is not clear whether they supported a hipped roof or a saddle roof. The ground plan is similar to that of house type Oss-Ussen 1A (Schinkel 1994, 11), which probably dated to the Middle Bronze Age. The other Bronze Age features at Moskes are mainly pits, the function of which is difficult to ascertain. A remarkable artefact was recovered from a shallow pit near house 1. This pit contained a large fragment of a Middle Bronze Age (1800 to 1050 BC), central European style bronze sickle (Fig. 14.3: pit 12). Repeated sharpening and wear probably removed much of the blade.

At the location of Steenakker, besides a scatter of pits, two clear clusters of features were revealed. These represent two probable occupation sites containing, among other features, an outbuilding and a well. Evidence for any houses, however, is lacking. Huifakker, by contrast, yielded no less than three longhouses, situated close together, as well as two outbuildings and a pit (Fig. 14.4). The houses are east-west orientated, three-aisled and very similar in size (20 -25 m long and 6 m wide). The distance between the roof-bearing posts (2 m in virtually all cases) is typical for Middle Bronze Age-B houses (Arnoldussen and Fontijn 2006). Striking is the lack of outer posts round the end of House 3. Usually the principle of these Middle Bronze Age houses is fairly uniform, consisting of four rows of postholes forming a three-aisled structure. Close to House 5, two outbuildings of 6 by 2.5–3.5 m were discovered.

Dating the houses from these two locations (Moskes and Huifakker) is difficult. Only house 5 was absolute dated to



Fig. 14.4 Middle Bronze Age occupation evidence at Huifakker

the Middle Bronze Age. Charcoal from a roof-bearing post from house 5 yielded a  $^{14}\text{C}$ -date of 1295 – 1245 cal. BC. The other houses can only be dated on typological grounds to the Middle Bronze Age. Three houses were constructed in the same manner, also resembling house type Oss 1A, and can be roughly dated between 1500 and 1200 BC. The four storage barns at Breda-West (one at Moskes and three at Huifakker) were assigned to the Middle Bronze Age, on the grounds of their similar orientation and their vicinity to the Oss 1A type longhouses.

### Burial sites

A total of seven Middle Bronze Age burials was discovered west of Breda (Fig. 14.3). The isolated graves, spread out across a number of higher cover sand ridges, comprise three barrows and four graves of which it is uncertain whether or not they were originally covered by a mound. One of the barrows, discovered during digging work for the high-speed link railway, was c. 14 m in diameter and had at least two construction phases. During the first phase, it was surrounded by a ring ditch; during the second, by up to four circles of posts (Fig. 14.6). Despite a watching brief accompanying the digging work, several shallow stakeholes were destroyed. On typological grounds, the barrow is dated as Middle Bronze Age. The first phase dates from the Middle Bronze Age, period A or B; the second phase from period B.<sup>2</sup>

Charcoal from the ring ditch of one of the other barrows produced a date of 1750 – 1510 cal BC. None of the barrows contained a primary, central burial; only ploughed out

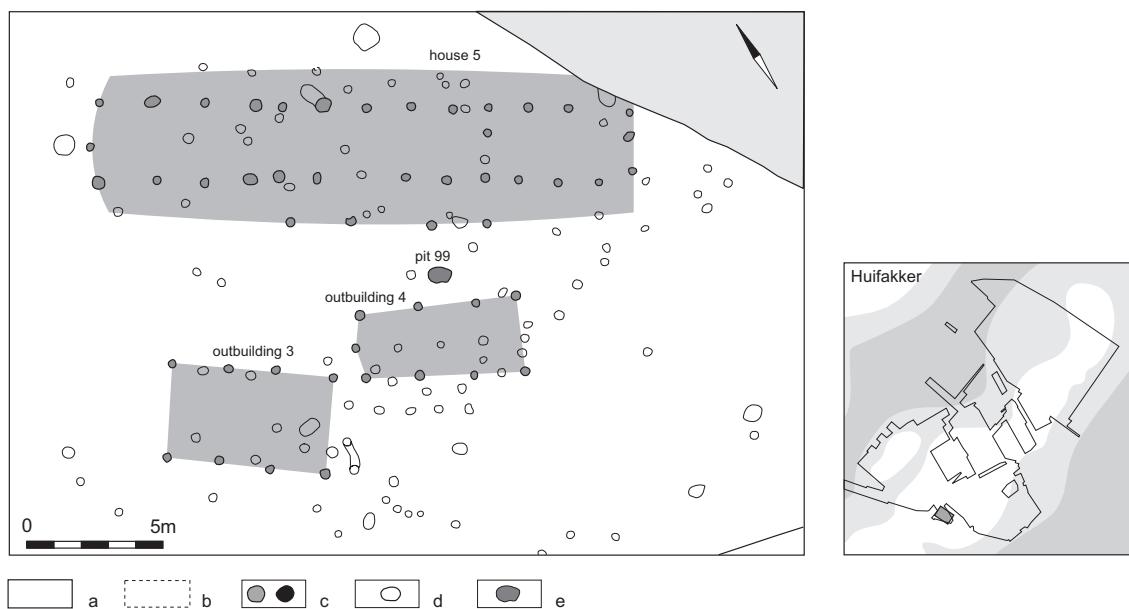


Fig. 14.5 Middle Bronze Age occupation site with outbuildings at Huifakker.  
Legend: a: Excavation boundary; b: Recent disturbance; c: Postholes of buildings; d: Other features; e: Pits

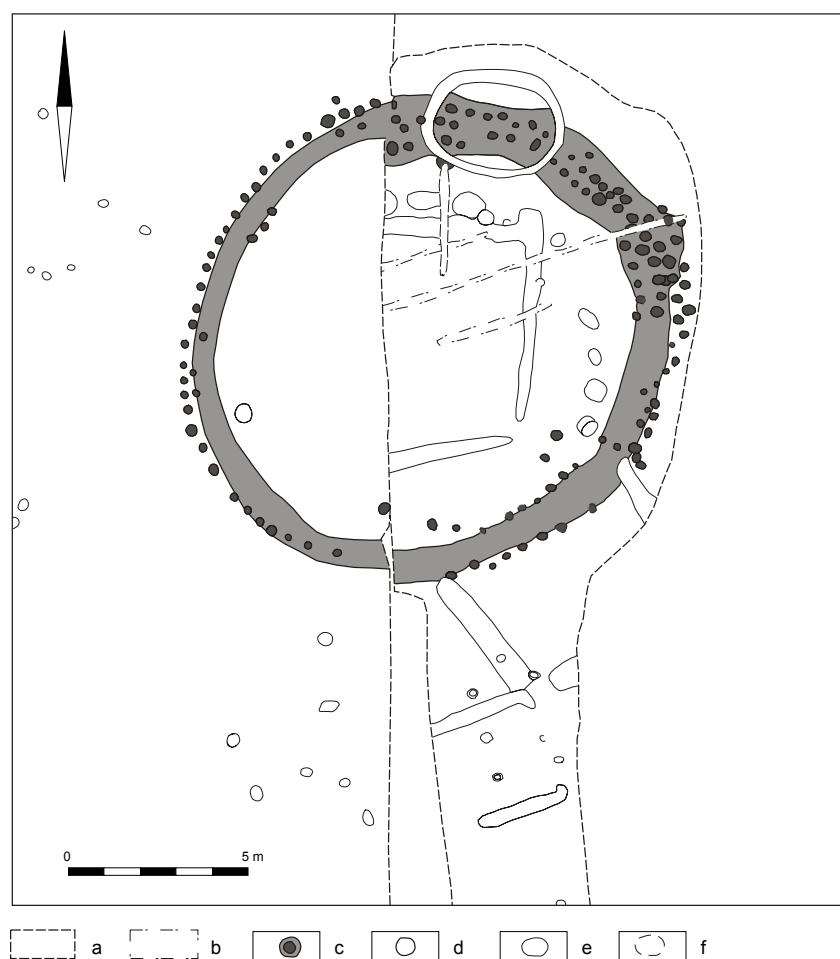


Fig. 14.6 The Vinkenburg round barrow. Legend: a: Limit excavation trench; b: Disturbed; c: Posthole and postpipe; d: Possibly associated feature; e: Other features; f: Natural discoloration

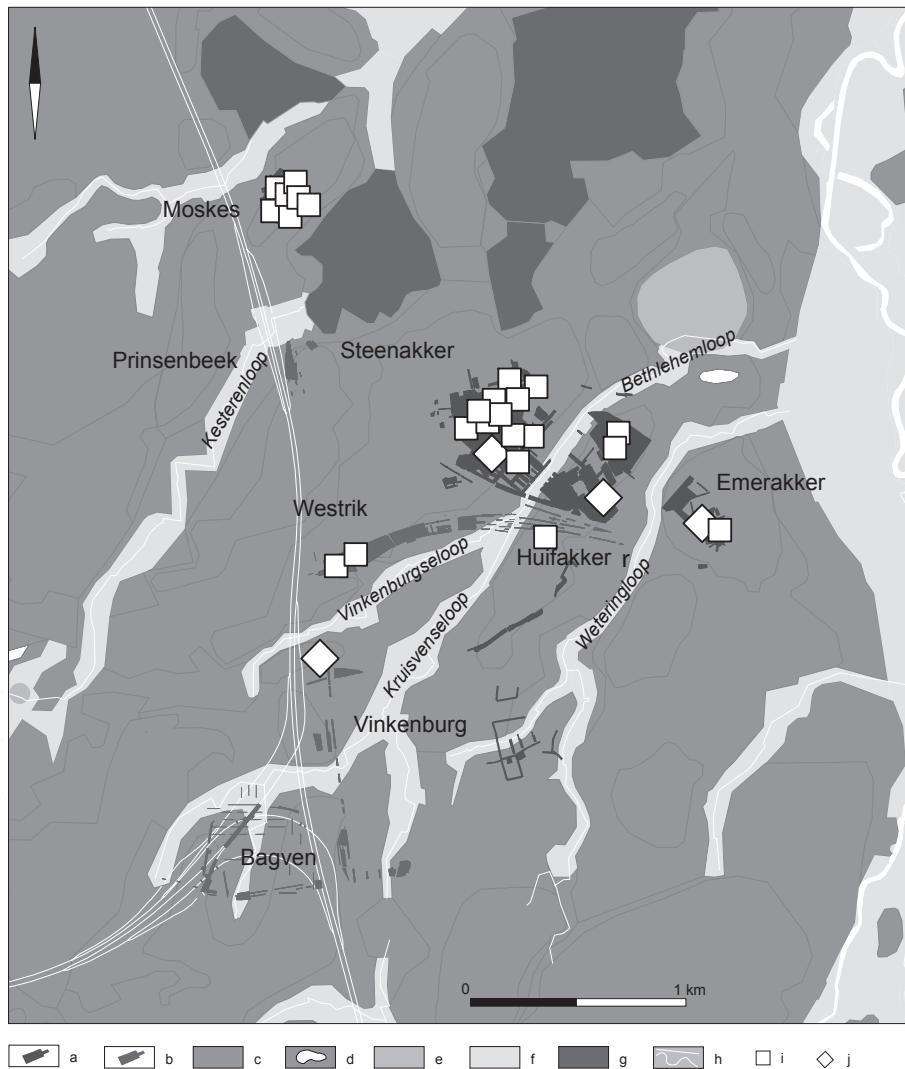


Fig. 14.7 Location of all Late Bronze Age and Early Iron Age site concentrations west of Breda (HSL and Breda-West study area) within the landscape. Legend: a: Trenches Breda-West; b: Trenches HSL / A16; c: Coversand; d: Dunes; e: Moor; f: Brook or river valley; g: Peat; h: Roads and brooks; i: House; j: Urnfield

fragments of burnt bone were encountered in the plough soil. At 15 meters from the large barrow surrounded by stakes described above, smaller round and square burial structures were found, which have been dated to the Middle Iron Age and Roman period. Of these younger graves, only the filled-in ditches have been found. As they were situated on the top or along the edge of cover sand ridges (Steenakker, Overbroek and Bagven), these barrows could have been monumental landmarks in the landscape, and possibly served as territorial markers.

#### **Late Bronze Age and Early Iron Age occupation evidence.**

At Breda-West, Late Bronze Age to Early Iron Age occupation occurred on all cover sand ridges (Fig. 14.7). The largest concentration is located at Steenakker. Here, besides farmhouses, (storage) barns, wells and pits,

concentrations of postholes, artefacts and burials were also found. Possibly, these represent several farmsteads, although there were very few recognisable boundaries separating the various farmyards. At Steenakker, an Early Iron Age ditch was found, but no evidence for a house. At Moskes, 300 stakeholes of fences around houses 10 and 11 may provide an indication of the size of the yard. The fences form clear northeast-southwest and northwest-southeast oriented linear structures.

At Breda-West, the ground plans of 21 houses were dated between the Late Bronze Age and the Early Iron Age: two in the Late Bronze Age, four in the Late Bronze Age or Early Iron Age and fifteen in the Early Iron Age. These dates are solely based on the typological characteristics of ground plans and pottery. Verification by means of radiocarbon dating was not possible, as the features did not contain any organic material. The ground plans indicate that the house construction methods differed from those used

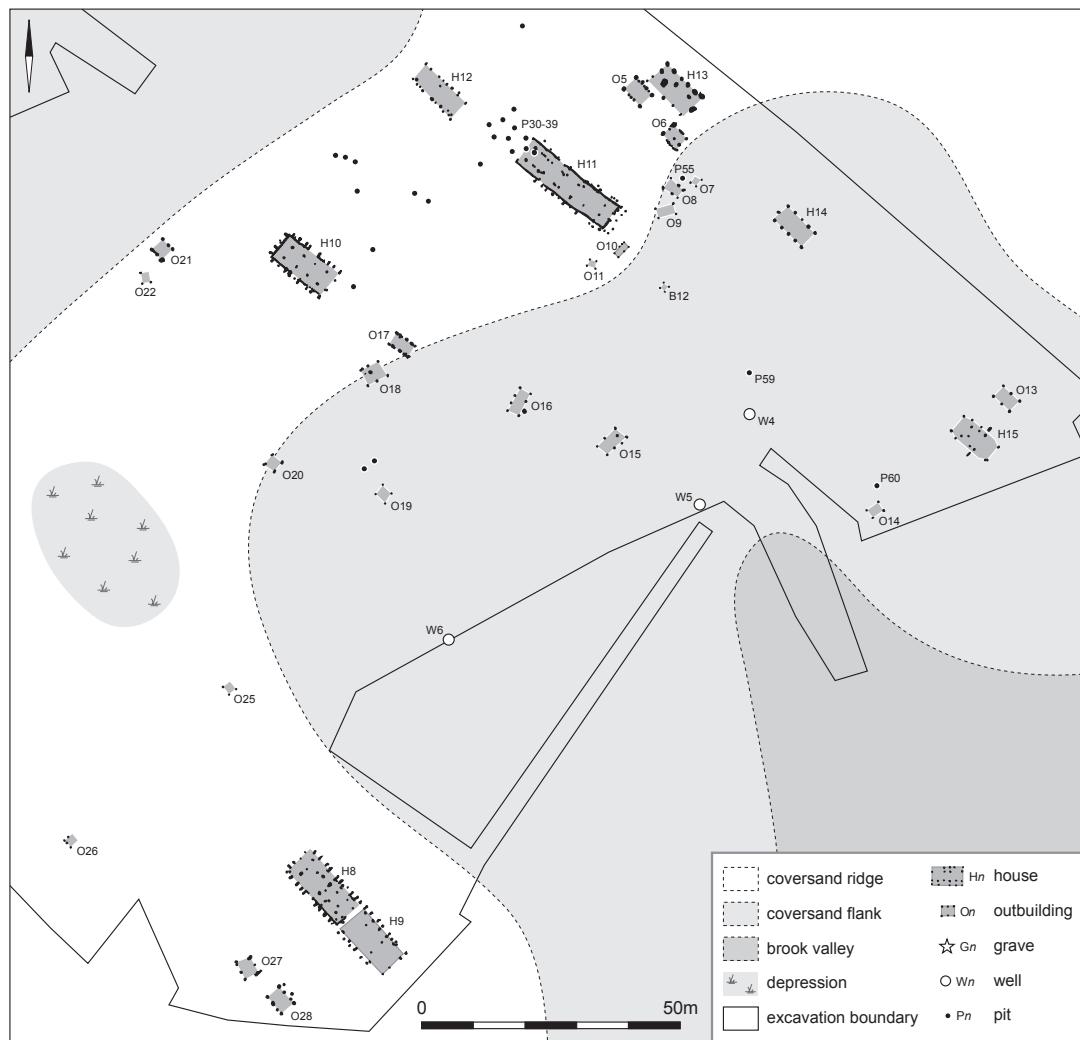


Fig. 14.8 Late Bronze Age and Early Iron Age occupation evidence at Moskes

during the Middle Bronze Age. The Middle Bronze Age houses consisted of half-portals; interior posts and outer posts jointly supported the rafters. From the Late Bronze Age onwards, the roof-bearing structure consisted of an internal horizontal framework of beams and cross beams supported by internal posts and situated *c.* two-thirds of the way up the roof. These internal posts were placed mainly along the long axis of the house, suggesting a division into two segments. Occasionally, however, houses appear to have been divided into three or even four segments. Exterior posts, dug deeply into the ground outside the walls, supported the base of the roof. Occasionally, the base of the wall was placed in a foundation trench. Most ground plans suggest the presence of a hipped roof.

Two of the eight houses on the Moskes cover sand ridge can be dated to the Late Bronze Age (Fig. 14.8: houses 11 and 12). Interestingly, the largest concentration of pits was encountered around these two houses. The ground plan of house 11 is orientated northwest-southeast, at least 23 m long and represents a three-aisled longhouse with byre. House 11 had at least three entrances: one in the eastern

wall and two opposite entrances in the long walls. The exterior posts were placed at a considerable distance from each other and the base of each wall had been placed in a foundation trench (Fig. 14.9). Although the southern wall foundation trench is deeper than its northern counterpart, postholes in the latter were still 40 cm deep. The western part of the structure is thought to have been the living area: a large storage vessel, more than a meter wide, had been dug into the ground here, and a smaller pot was found inside it. The actual layout of the western half of the house is unclear; any features here were destroyed when a large number of pits was dug. These pits mostly date from the Early Iron Age – an indication that this former occupation site, which probably remained recognisable as such, was used intensively by later generations. From a typological perspective, the house most resembles a combination of Oss types 2 and 3: the ground plan consists of three aisles (type 3) with a wall foundation trench; the wall posts are closely spaced, while the exterior posts are placed much further apart (type 2). Comparable houses are known from Riethoven, which also contained a dug-in storage vessel,

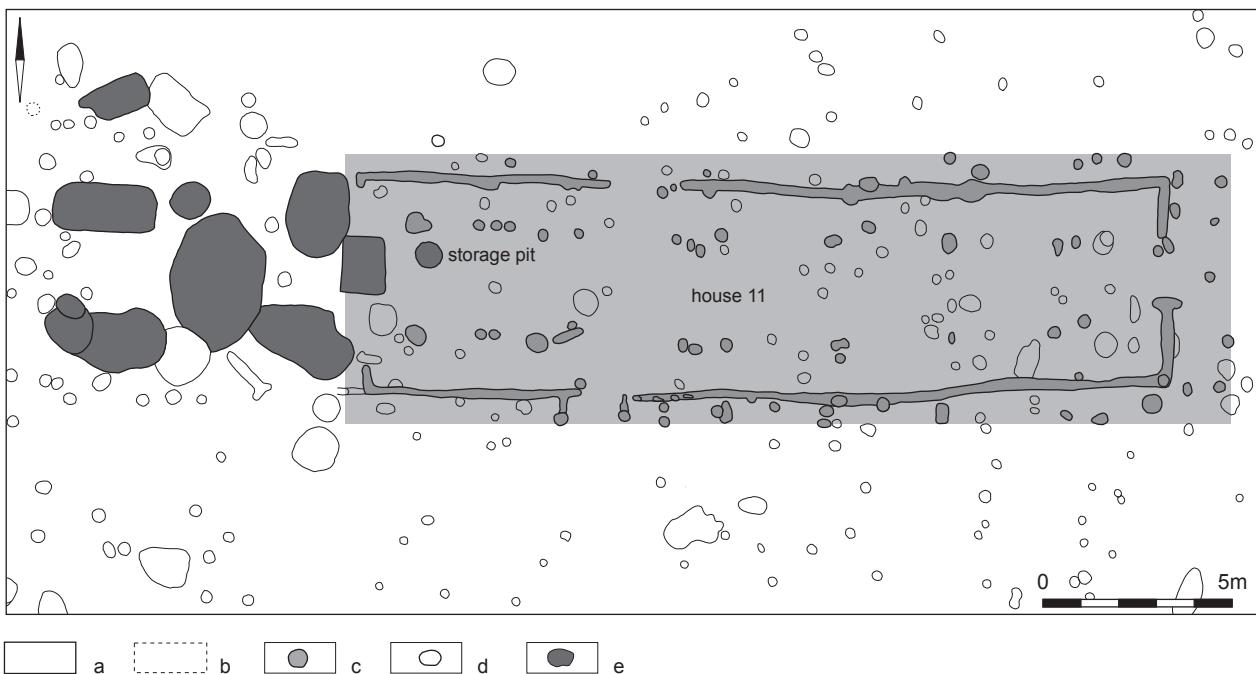


Fig. 14.9 House 11 with a concentration of pits to the west and the location of the storage vessel within the house. Legend: a: Excavation boundary; b: Recent disturbance; c: Postholes of buildings; d: Other features; e: Pits

Loon op Zand and St. Oedenrode (Riethoven: Slofstra 1991; Loon op Zand: Roymans en Hiddink 1991; St. Oedenrode: Van Bodegraven 1991). The pottery assemblage from Moskes, which suggests a Late Bronze Age date, consisted of sherds tempered with ground pottery and stone; it was slipped, polished and occasionally decorated with fingertip impressions or relief.

At Moskes, houses 8 and 9 have two entrances in each of their long sides, giving access to separate spaces. It is not clear whether houses 8 and 9 formed one joint building, housing two families that may have formed one household (Fig. 14.10), or whether these represent individual building(phase)s. Buildings that provided two individual domestic units are known from several other Early Iron Age sites (Gerritsen 2003, 79, table 3.7). Only house 8 contained evidence for a wall foundation trench. On typological grounds, house 8 has been dated to the Early Iron Age. House 9 was subsequently built on to house 8; the smooth structural transitions allow for house 9 to be interpreted as an extension of house 8.

In contrast to the situation in the Middle Bronze Age, there appears to have been more variation in the construction methods of these houses, not only in terms of the depth of postholes for interior and exterior wall posts and of the construction and function of walls, but also in terms of internal division of space along the long axis. To the supporting framework, however, it does not make any difference whether the structure consists of two, three or four aisles (Huijts 1992, 55–71). It is difficult to reconcile such a degree of variation with the deep-rooted notion of a distribution pattern of two-part houses south and three-part houses north of the rivers Rhine, Waal and Meuse. The

Breda-West excavations confirm earlier indications that houses consisting of three and four segments (houses 13, 26, 30 and 68) also occurred south of the rivers (Verwers 1972, fig. 58). This north-south divide appears to apply mostly to the Early Iron Age – from that period onwards a sufficient number of houses is known to warrant such a division. For the Late Bronze Age, due to a lack of evidence, it is impossible to apply the same division.

Both during the Late Bronze Age and the Early Iron Age, the prevailing house type is the house with a byre, with opposite entrances in the long walls, both giving access to byre and house (Gerritsen 2003, 41–45). Nowhere does the in Breda assumed byre show evidence of small dividing walls to create separate cattle boxes. Considering that the average width of a house is 6 m and that the entrances are situated at c. one-third along the length of a house, the living space would have amounted to 25 to 30 m<sup>2</sup>.

It has been suggested that during the Late Bronze Age, longhouses became progressively smaller (i.e. shorter), compared to the Middle Bronze Age (Roymans and Fokkens 1991, 9; Fokkens 2003, 25–26). This change is explained by the assumption that during the Late Bronze Age, families shrunk from extended to nuclear families (Fokkens 2003, 23 ff.). At Breda-West, the five houses dated to the Late Bronze Age or Late Bronze Age/Early Iron Age transition are between 11 and 23 m in length. Although during the Early Iron Age house lengths ranged from 9 to 23 m, only two houses are longer than 14 m.

Three wells, which are situated between the Moskes dwellings and on the edge of a pond, could be dated to the Early Iron Age. Considering their central location, it is assumed they were used communally. These wells do

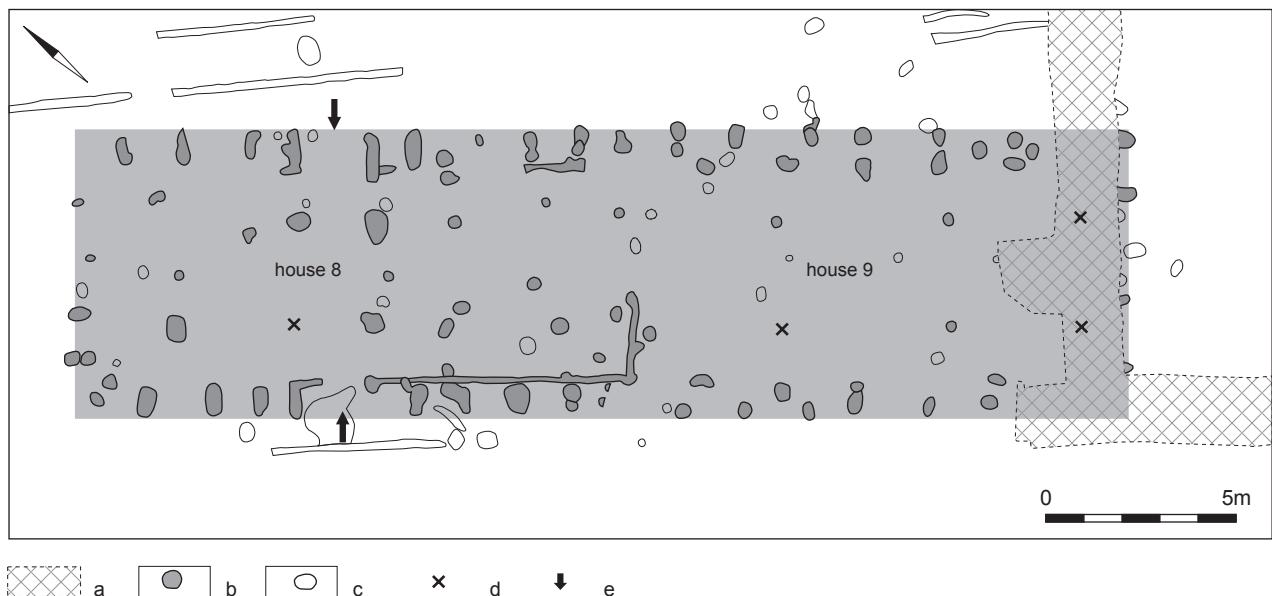


Fig. 14.10 House 8 (left, with wall trenches; arrows indicate entrances) and House 9 (right, represented by postholes) at Moskes.  
Legend: a: Recent disturbance; b: Postholes of buildings; c: Other features; d: Missing posts; e: Entrance

generally not contain any form of revetment. Only in one case, a well of 2.75 m in diameter, was discovered in which 36 pointed and split oak stakes had been hammered at an angle into the ground as a type of revetment.

Only once a settlement site is being reoccupied after a period of abandonment. One rare example of reoccupation occurred next to the Late Bronze Age house 7 at Steenakker. In the Early Iron Age, this site was reoccupied, as is evidenced by the presence of two houses and a large number of pits. The latter contained, among other artefacts, a complete pot as well as evidence for iron working (Fig. 14.11). Charcoal from pit 72 has yielded a  $^{14}\text{C}$ -date of 900 – 870 and 865 – 805 cal BC, i.e. Late Bronze Age. Although we know that house 7 consisted of three aisles, its ground plan is incomplete, as bioturbation and leaching have significantly reduced the visibility of the southeastern part. The regular intervals between the posts (2 m), the striking length of the house (20 m) and the similarity in depth between the internal and external postholes are all characteristic features of house type Oss 1A, which has been dated to the Middle Bronze Age/Early Iron Age transition (Schinkel 1994b, 11 (deel II); Roymans and Fokkens 1991, 8–9). The two opposite entrances are probably situated halfway along the long walls. Early Iron Age pottery, tempered with finely ground ceramic, was recovered from the features. The 12 m long house 18 possibly immediately postdates house 7, based on the range of pottery found in the postholes and surrounding area; clear evidence for this in the form of intercutting features, however, is lacking.

Situated around the houses at Moskes and, to a lesser extent, at Steenakker, is a multitude of large pits, which contained abundant archaeological material. These may be depositions as part of abandonment rituals – two pits

contained several complete pots –, as well as evidence for reuse of storage pits. Most pits have been interpreted as storage or rubbish pits. Many pits, however, predate the houses they appear to be spatially associated with, such as those surrounding the Late Bronze Age house 11. One of the pits actually intercuts the wall ditch. Radiocarbon analysis on a single cereal grain from pit 35, the largest pit, produced a date of 770 – 520 cal BC, i.e. Early Iron Age. The way in which the pits had been covered up and the deposition in these pits of loom weights and pots, both upturned and upright, suggest an interpretation beyond simple cleaning of house and yard. The artefact assemblage recovered from the pits, which comprised pottery, daub, quern stones, whetstones and loom weights, is representative of domestic activities and the house itself. This is no ordinary rubbish scattered about on the grounds of an abandoned farm; there are too many complete artefacts for such a basic interpretation. A more likely scenario is that offerings were made to mark the start of occupation – such as pots or other objects deposited in postholes –, or that certain rituals involving deposition were carried out upon abandonment or that even after abandonment, the sites were the scene of ritual activity, the latter suggesting ancestor worship (Van de Broeke 2002, 45–61; Van Hoof 2002, 73–93). Similar remarkable depositions have not only been found inside and around houses. Other examples of depositional environments in Breda include wells and postholes, in which pots were stacked on each other or where a bowl was carefully placed. Another striking aspect is that the deposition of the pot, rather than its content, appears to have constituted the main action and not so much the deposition of its content, as many pots and bowls have been placed upside down. Deposition of pots occurred more frequently

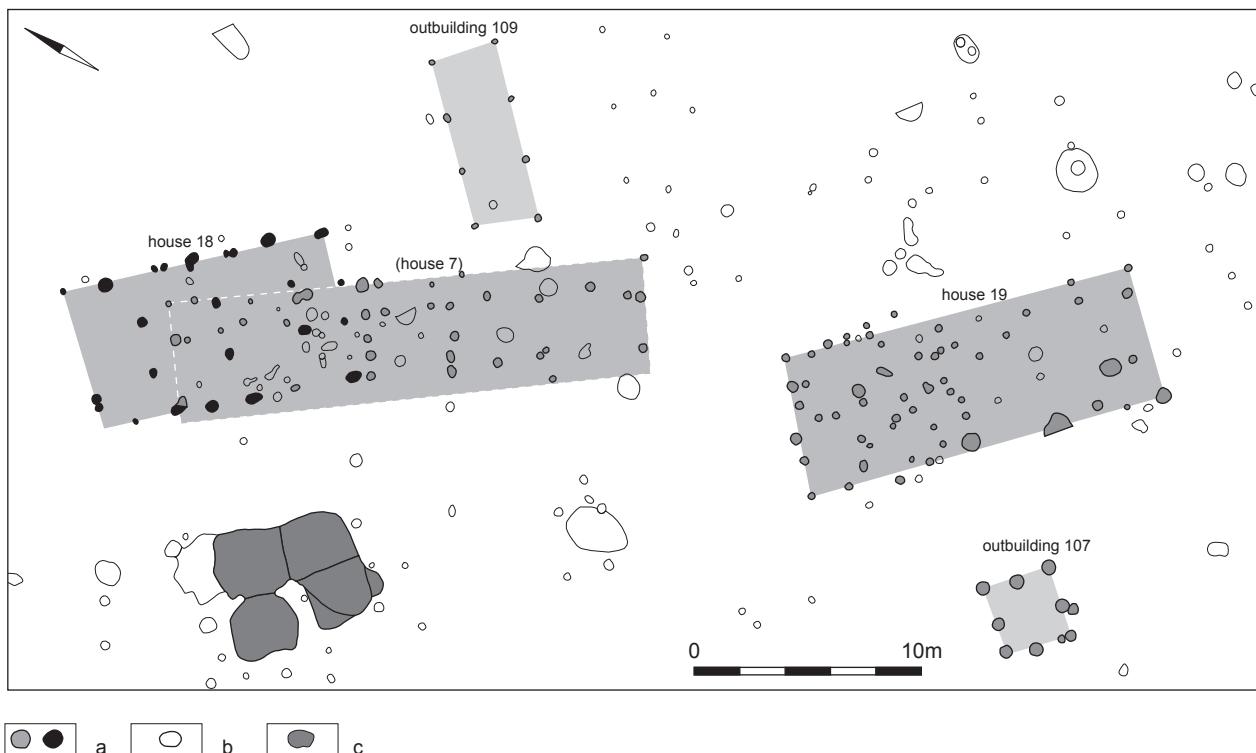


Fig. 14.11 Houses 7, 18 and 19 at Steenakker with surrounding outbuildings and a concentration of pits to the west. Legend: a: Postholes of buildings; b: Other features; c: Pits

in the Late Bronze Age and Early Iron Age than in later periods (Gerritsen 2003, 84–86). In Breda-West most of the pots found intact dated from the Early Iron Age. In the river valley at Steenakker, one pit contained more than 25 kilo of pottery – more than was found in any other single feature at Breda-West. On typological grounds, the pottery was dated as Late Bronze Age/Early Iron Age, while <sup>14</sup>C-analysis of charcoal from the pit produced a date of 760 – 720 and 540 – 390 cal BC, i.e. Early to Middle Iron Age.

#### Burial sites

At Steenakker, an urnfield containing *c.* 50 burials was excavated. It consisted of, among other features, ring ditches without mounds, rectangular burial structures and graves without mounds. Only seven of the barrows contained the remains of cremations, deposited in urns. Of the other burials, only the ring ditches have survived. The urnfield was poorly preserved mainly due to the agricultural use of the land since the Middle Ages: only 12 per cent is estimated to have survived. One of the most remarkable discoveries was a square pit, in which on one side four complete pots had been placed. Since the largest part of the pit was marked empty, it is possible that this feature is an inhumation grave. Typological dating of the pots suggests an Early Iron Age date. The anomalous nature of the grave and the grave goods are hints that whoever had been buried here enjoyed a special status.

## The settlement system

### Settlements

The Bronze Age and Iron Age settlement pattern can be characterised as dispersed habitation: instead of people living in each others' immediate vicinity, there was a certain distance between the individual farmhouses. Local groups will have moved freely within the as yet sparsely populated landscape, their choices for settlement locations most likely determined by ancestral occupation and burial grounds, such as large barrows. During the Middle Bronze Age, the local community at Breda-West probably occupied a minimum of three or four longhouses, scattered across several cover sand ridges. This community will have consisted of a group of close relatives, with several generations living under one roof. One such household lived at Moskes, another at Huifakker; the latter site had a longer period of occupation than the former. Outbuildings were few compared with later sites, suggesting that during the Bronze Age there was less need for storage in outbuildings than in the Iron Age. This may have been because the large Bronze Age longhouses provided ample storage space, possibly in lofts. In addition, there were numerous pits, which, considering their size and the nature of their fills, can be interpreted as storage pits or silos. Why these pits should only occur at close range to houses is unclear.

Wells do not appear to have had the same close spatial connection with houses. All three of the wells encountered were situated on the edges of ponds on low-lying ground, i.e. in locations with easy access to groundwater.

Despite large-scale archaeological investigations carried out over recent years, our knowledge of Bronze Age and Iron Age houses is still limited. Prospection for sites from these periods in particular is difficult due to their poor visibility and dispersed location, while relative dating of houses is hampered by the fact that features such as postholes contain very few diagnostic finds. Therefore, it is imperative that radiocarbon analysis be applied to each house of the Oss 1A type in order to provide an absolute date. Equally, many uncertainties exist concerning the spatial relationship of the houses with the immediate surrounding area, due to a lack of research into the layout of farmyards and the use of storage barns. The investigations at Breda, however, have contributed substantially to the study of these aspects.

The average lifespan of the excavated farmsteads is estimated to have been *c.* 25 years (Roymans and Tol 1993, 49). The fact that this coincides with an average generation may not be a coincidence. At Breda-West, 21 house sites date to the Late Bronze Age/Early Iron Age, a period of *c.* 400 years. Assuming that a farm was in use for *c.* 25 years, that a local group consisted of four households and that there was always at least one such group living permanently in the region during this 400-year period, the minimum number of houses should be 64. As large swathes of the four investigated cover sand ridges were not excavated, many occupation sites may have remained undetected; the settlement area of a local group may have been extensive. The assumption can therefore be made that many more houses are situated outside the study area, which is in accordance with the dispersed settlement pattern. The seemingly isolated pits and wells at Breda-West, located at a considerable distance from the excavated houses, may then be indicators of the presence of other houses nearby. The Breda-West excavations have shown that new settlement sites were not necessarily always situated on the same cover sand ridges. The scale of the distribution pattern of the 'roaming farmsteads' appears to be much larger than previously thought; it may well have extended onto other, geographically similar cover sand ridges in the wider Breda-West region.

### Burial sites

The picture of Bronze Age and Early Iron Age burial customs in western Noord-Brabant is similar to that in the eastern part of the province: barrows for selected members of the community, cremation burials or secondary burial in barrows for others (Theunissen 1999). In this period, impressive burial mounds continued to be erected, which functioned as territorial markers during later (Iron Age and Roman) periods (Roymans 1995, 2–23; Roymans and Gerritsen 2002, 257 ff.). Intriguingly, neither the HSL

excavations at Breda nor the Breda-West excavations by Breda City Council have produced extensive urn fields such as those known from the eastern regions in the Netherlands. The burials at the Steenakker urnfield appear to be concentrated on a cover sand ridge, which may be explained by the presence of a prehistoric road that ran past the Westrik and Vinkenburg barrows. The presence of this road is presumed rather than attested: archaeological evidence for it is lacking, but it is highly likely that the Bethlehem river valley functioned as a corridor. Middle and Late Iron Age as well as Roman graves were often situated on or near barrows or urnfields (Gerritsen 2003, 145–150). At the same time the Steenakker urnfield was falling into disuse, the area around the large Vinkenburg barrow was being reinstated as a burial ground. Some 500 years later, in the first century AD, several cremation burials dating from this period indicate reuse of the Steenakker urnfield. Throughout prehistory and well into the historical period, then, ancestral graves reflected the history of local groups and the legitimacy of their territorial claims.

### Concluding remarks

Until recently, little archaeological investigation had been carried out of the western Noord-Brabant cover sand ridges and their surrounding landscape. Our knowledge concerning the occupation of this region was therefore limited. Plans for a business park, a high-speed rail link and for the upgrading of the A16 motorway west of Breda created opportunities for investigation, to fill these gaps in our knowledge of the archaeology of the region. Previously, attempts to synthesise the results of investigations in the cover sand landscape of the southern Netherlands had mainly focussed on eastern Noord-Brabant. However, the results of the HSL/A16 and Breda-West excavations will undoubtedly lead to a widening of the scope of this research.

Due to the scale of economic development, the archaeology in the region west of Breda is under constant threat; investigations are therefore ongoing. This work will hopefully provide new and better answers to important questions from previous research, and will no doubt continue to enhance our knowledge.

### Notes

- 1 Older Cover Sand of the Twente Formation.
- 2 Middle Bronze Age-A: 1800 – 1500 BC; Middle Bronze Age-B: 1500 – 1100 BC.

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# 15 The living and the dead: a Bronze Age barrow and farmyard from Weelde

*Rica Annaert*

## Introduction

This article discusses two sites discovered during a land consolidation project managed by the Flemish Land Agency (VLM) in the municipalities of Poppel and Weelde (community of Ravels, province of Antwerp). Both sites, a Bronze Age farmyard (Melkerijstraat) and graves (Schootseweg), form part of the numerous sites discovered by archaeological evaluation trenches at the locations where ground works were planned. Land consolidation projects aim at a better agricultural exploitation and the integration of natural values. This aim includes the execution of radical ground works. In compliance with the Flemish law on archaeology, these entire ground works were executed under archaeological supervision. This supervision was organised by the Flemish Heritage Institute (IAP, since 2004 VIOE) and the Flemish Land Agency (VLM) (with logistic support) in charge of the Committee of this land consolidation project. In this way several still unknown archaeological sites could be traced all over the project area. A number of known Mesolithic sites were investigated previously (Fig. 15.1: A-C; Verbeek 1996). The archaeological rescue operations executed during the ground works, yielded a lot of new archaeological information about the Campine region: a Middle Bronze Age settlement site associated with a contemporaneous burial place (Fig. 15.1: D-E; Annaert 1998b; 1999, 40-41; 2003; 2006), different locations with traces of Iron Age occupation (Fig. 15.1: F-I), the attestation of Early Roman agricultural activities (find of a wooden harrow fragment: Fig. 15.1: J; Annaert *et al.* 1997a; Annaert 1999, 40-41; Deforce and Annaert 2005), a native Roman cemetery (Fig. 15.1: K; Annaert 1998a; 1999, 42), a Merovingian farmyard (Fig. 15.1: L; Annaert *et al.* 1997b; Annaert 1999, 43), a

Carolingian settlement at the riverbank of the Aa (Fig. 15.1: M) and Medieval and Late Medieval concentrations (Fig. 15.1: N-Q) were discovered.

## Topographical and geological situation

The sites Melkerijstraat and Schootseweg are located in the characteristic sandy region of the Belgian northern Campine between Turnhout (B) and Tilburg (NL), forming part of the Meuse-Demer-Scheldt region (MDS). The geological substrate is formed by the Quaternary gravel deposits of the Meuse terrace. During the Pleistocene period the for this region typical sand ridges were formed, creating a gently undulated landscape. In the Holocene period small stream valleys developed which divided the landscape into numerous small and large sand plateaus. The micro-relief between sand ridges and valleys became even more flattened from the Late Middle Ages on, when a thick equalising platten layer developed by platten manuring. This manuring practice affirms the general idea that for centuries this land was used for agricultural purposes. Also, this thick platten layer protected the archaeological traces from destruction by agricultural activities.

The settlement site was located centrally on a sand ridge (29 m altitude) situated between the stream valleys of the Moleneindse Loop to the south and the Straatloop to the north. About 500 m more northeastward, the sand ridge ends at the confluence of both small streams (Fig. 15.2: ▲).

The cemetery was situated 500 m southeastwards, on the top (30 m altitude) of a similar sand ridge between the Moleneindse Loop to the northwest and the Aa to the southeast (Fig. 15.2: ●). The Aa is the most important

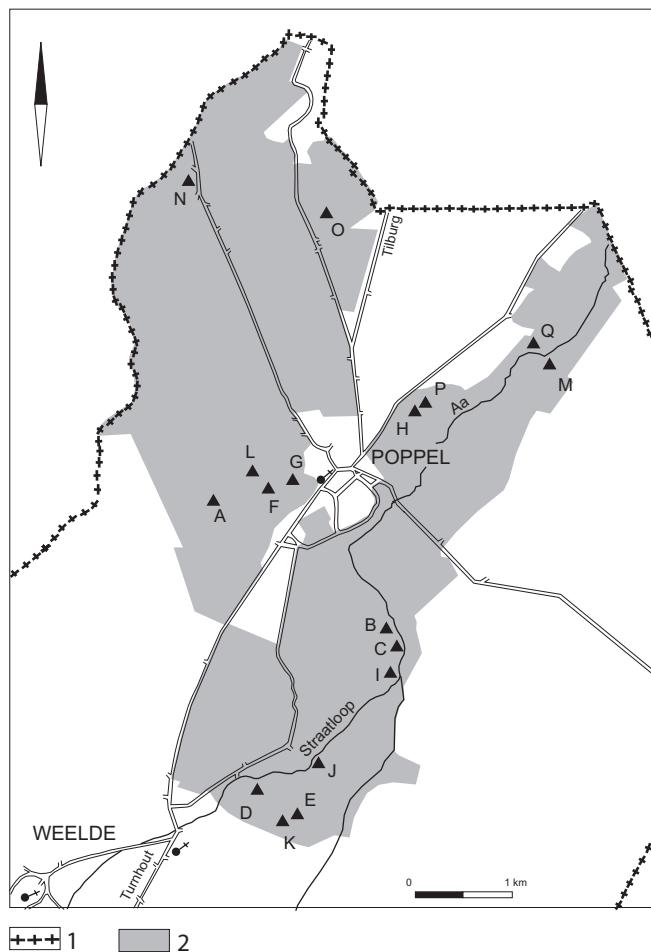


Fig. 15.1 Project area of the land consolidation at Poppel and Weelde with the results of the archaeological rescue operations.  
Legend: A-Q: archaeological sites mentioned in the text; 1: Border Belgium-Netherlands; 2: Land consolidation area

stream in this region and drains the water of all his affluents into the Meuse basin.

A thick plaggen soil of 100 cm covered the moderately dry and moderately wet loamy sand soils. The original surface of both terrains was incorporated into the base of the plaggen layer, resulting in an A-C profile. Archaeologically this means that all features were decapitated, eliminating all superficial traces and preserving only the deepest parts of postholes and pits.

### The Middle Bronze Age farmyard on the location Melkerijstraat

#### General remarks

The quality of the remains discovered in the evaluation trenches led to a more extensive rescue excavation on that part of the terrain where deep levelling works were planned (parcel 473 A). An investigation of a 2034 m<sup>2</sup> surface resulted in the discovery of a high density of soil

marks. Not only postholes, but also pits, a tree throw pit and more recent traces of cultivation ridges, sand extraction and perturbation by animals were uncovered (Fig. 15.3). The archaeological traces were extremely vague, which made them very difficult to register and interpret. This transience of archaeological features covered by a plaggen soil, occurs often on the sand ridges in the Campine region. This transience might be attributed to anthropogenic factors such as the continuous lowering of the ground water table and excessive fertilisation. These factors start natural processes, which are detrimental to the visibility of archaeological features. Specifically the older traces of Neolithic and Bronze Age wooden buildings are the most affected by leaching (lixiviation) and fading. Further investigation and monitoring to counter and stabilize this form of destruction of archaeological traces seems absolutely necessary (Kars and Smit 2003, 2–6, 69–71, 86–88; Louwagie *et al.* 2005, 79–82, 291).

#### The ground plans of the houses

During fieldwork, one ground plan of a Middle Bronze

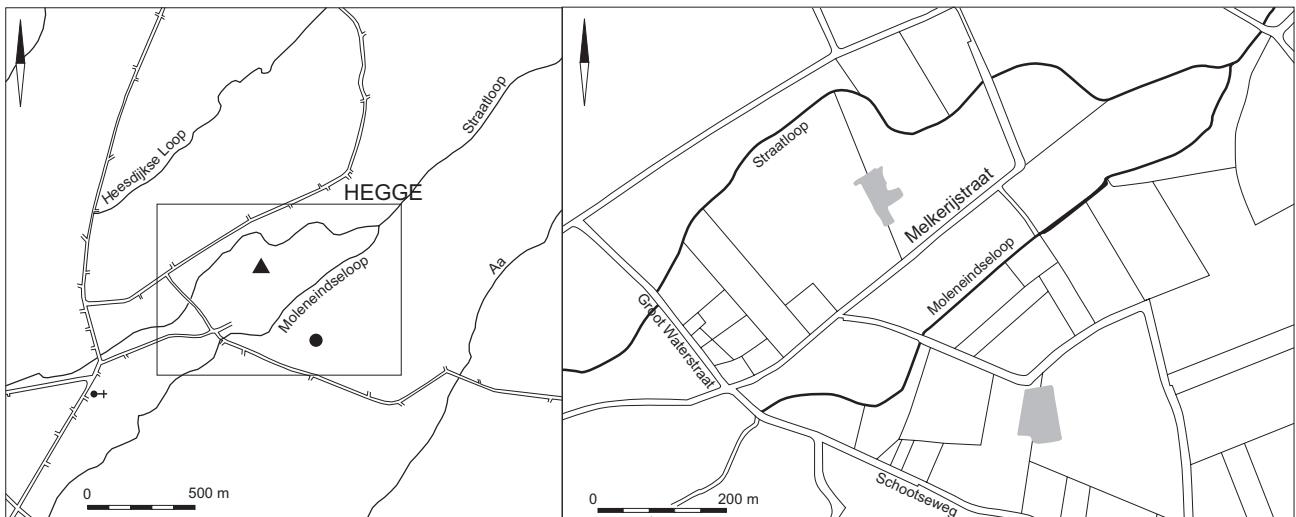


Fig. 15.2 Topographical and cadastral situation



Fig. 15.3 Excavation plan of Weelde: Melkerijstraat

Age farmhouse became visible. The post excavation study revealed three other possible ground plans of Middle Bronze Age buildings. Yet another ground plan could be dated to the Early Iron Age (Fig. 15.3: 1–6).

Farm 1 (Fig. 15.3: 1; Fig. 15.4 and Fig. 15.5) was probably a three-aisled house with rounded ends, suggesting the presence of a hipped roof. The building had a northwest/southeast orientation, was 23 m long and presumably 5 to

6 m wide. The position of the entrances is unknown. No indications of the wall construction had been preserved. Only a parallel row of 4 postholes was distinguished at the southeastern end of the house plan, but it seems unlikely to interpret this post row as an indication of an outer wall since the house then would be much wider than the current examples of this house type. No additional posts were present along the central axis of the house.

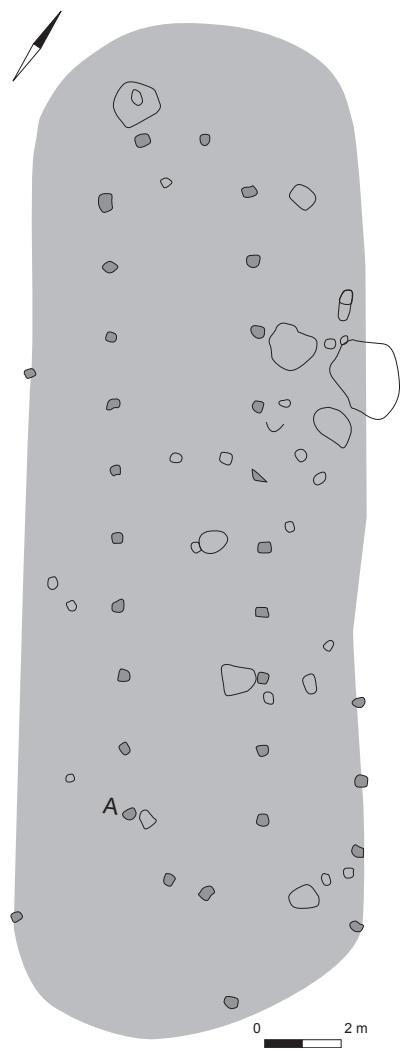


Fig. 15.4 Farm 1. A: 14C-dated sample

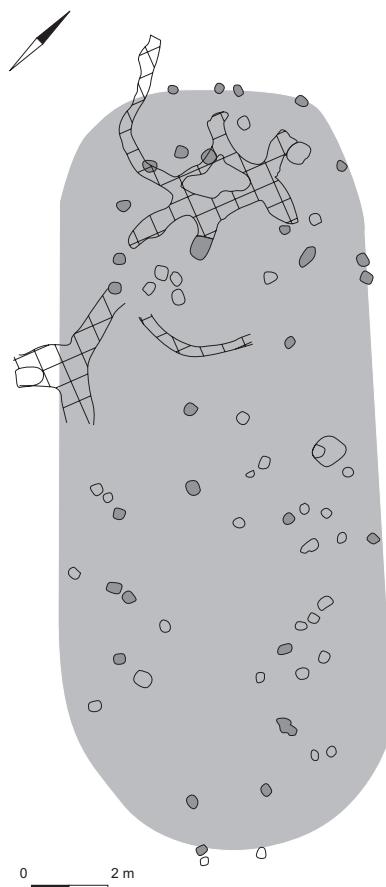


Fig. 15.6 Farm 4

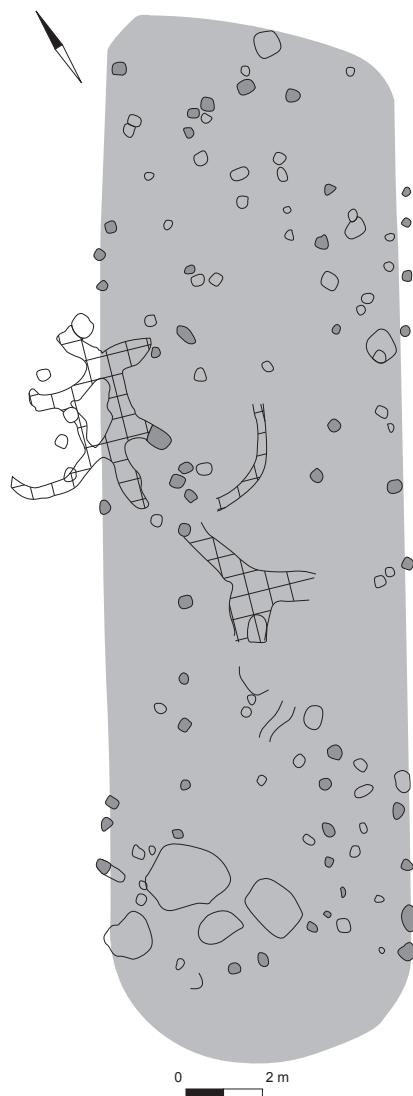


Fig. 15.7 Farm 3

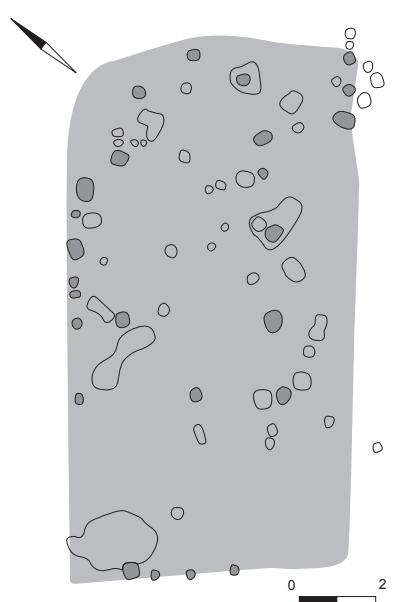


Fig. 15.8 Farm 4



Fig. 15.5 Farm 1 during the field work

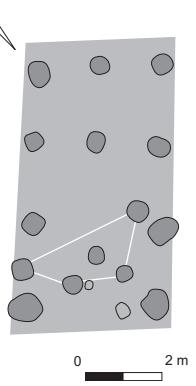


Fig. 15.9 Structures 5 and 6

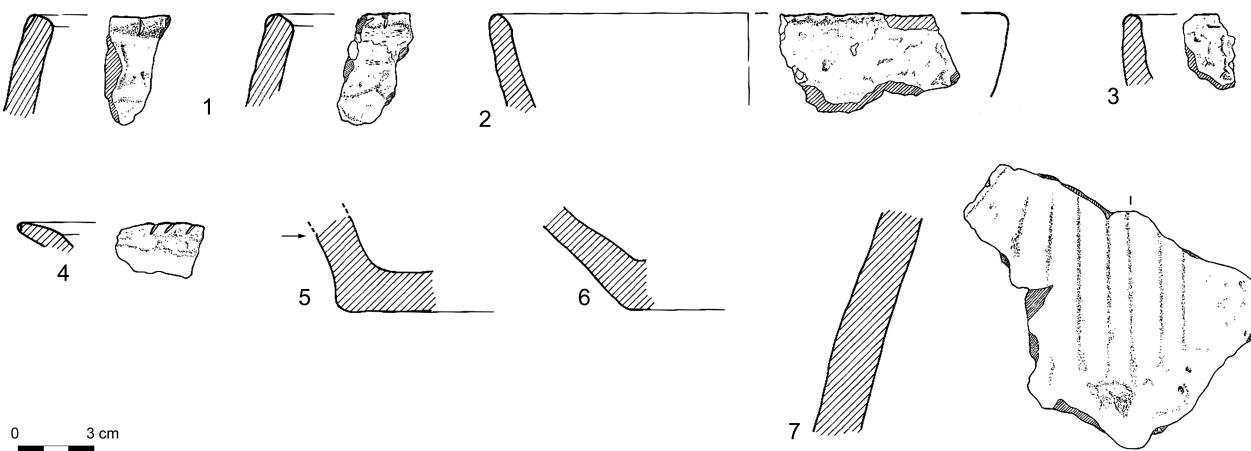


Fig. 15.10 Ceramics

Two pottery sherds were found in two postholes. A <sup>14</sup>C-date on charcoal from one of the postholes (KIA-21799: table 1) gave a dating result of 1620 and 1450 BC. The scientific relevance of this date can be discussed since the presence of charcoal in the primary fill of a posthole (i.e. not in the post pipe) must be interpreted as dug in material indicating only a terminus post quem for the building of the house. Presumably farm 1 is younger than the obtained <sup>14</sup>C-date.

The possible farmhouse 2 (Fig. 15.3: 2 and Fig. 15.6) also had a probably three-aisled ground plan and rounded end which suggest a hipped roof. The orientation was northwest/southeast, the length of the building was at least 23 m and the width presumably 5 to 6 m. One possible entrance was recognizable in the southern long side of the building. Three additional posts were placed along the central axis of the building.

The possible three-aisled farmhouse 3 (Fig. 15.3: 3 and Fig. 15.7) can also be reconstructed with a hipped roof due to the presence of rounded ends. This building had a north-northeast/south-southwest orientation, was almost 27.5 m long and possibly also 5 to 6 m wide. The position of the entrances could not be determined. One posthole contained a potsherd, which could not be dated more precise than to the Middle Bronze Age.

Building 4 (Fig. 15.3: 4 and Fig. 15.8) is a hypothetic reconstruction of a farmhouse with a rounded northern end and a straight southern end, suggesting a hipped roof on one side and a saddle roof on the opposite side. The building was orientated north-northeast/south-southwest, had a length of almost 14 m and was nearly 6 m wide. Entrances were not found. The only possible outer wall was found in a western row of postholes placed right across the inner posts. One post was present in the central axis. One rim sherd of a Middle Bronze Age vessel was found in a posthole.

Structure 5 (Fig. 15.3: 5 and Fig. 15.9) was a two-aisled outbuilding, orientated northeast, 7 m long and 4 m wide.

The northern part of the building had six parallel placed posts; the southern part was formed by four outer posts and one central post.

Within this outbuilding, a trapezoid structure (no. 6) could be distinguished (Fig. 15.3: 6 and Fig. 15.9). Radiocarbon dates of charcoal samples from two postholes (KIA-21800 and KIA-21805: table 1) resulted in two Iron Age dates, with one date between 790 and 510 BC and another between 760 and 640 or between 550 and 400 BC. Here too, the <sup>14</sup>C-dates must be interpreted as a terminus post quem for the construction of the house.

### Other archaeological structures

#### Pits

Several pits were found on the site (only traces with a depth over 15 cm and more than 1 m wide are treated as pits: Fig. 15.3: A-J). A cluster of four pits is situated in the south-eastern part of the area (see Fig. 15.3: A-D). One of these pits (pit A: Fig. 15.3: A) had the typical bell-shaped form of a silo. A charcoal layer on the bottom dates to 1260–1240 or 1220–1000 BC (KIA-21801: table 1). The other pits had a more irregular shape.

A second cluster of pits was discerned within or in the immediate surroundings of the farmhouses 1, 2 and 3 (Fig. 15.3: F-I). The lack of intersections with postholes from the buildings made it impossible to associate pits with buildings. A last pit was located in the north-western part of the settlement (Fig. 15.3: J).

#### Fireplaces

Two burned red spots indicate places where fires once burned (Fig. 15.3: a-b). Both were situated 2 m from each other in the south-eastern part of the excavation. In the vertical section of one of these, a gradual deepening was visible. The fireplaces were not situated inside a structure or building which makes it rather difficult to classify them as hearths. Possibly, they represent field ovens that were



Fig. 15.11 Grave ditch 1 with overlying native Roman cemetery

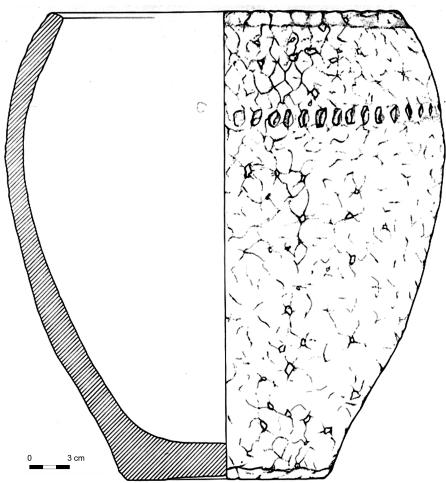


Fig. 15.12 Urn from grave 1

build on a regular basis in this zone for the production of ceramics or food.

### Cultural material

#### Ceramics

The fills of the postholes and pits yielded only 57 fragments of pottery (Fig. 15.10). The technical characteristics indicate production in field ovens. The local clay was coarsely tempered with crushed pottery and/or quartz. The rather low oven temperatures produced a soft pottery. The six preserved rim- and bottom fragments represent common Middle Bronze Age barrel shaped pots with thick walls and flat bottoms. Two rim fragments were decorated with fingernail impressions. The ceramics recovered do not allow for a more precise date for this settlement site other than 'Middle Bronze Age'.

#### Lithic material

The pit infills only yielded a few fragments of stone, mostly quartz. The smoothed side of 3 fragments can be an indication of a function as whet- or grinding stones. Other fragments may have been used as cooking stones.

The plough layer contained some lithic artefacts: stray finds which do not prove any local debitage. The absence of characteristic examples does not make it easy to associate this assemblage with a well-defined archaeological culture. On one hand, the absence of diagnostic elements for an attribution to a final-Palaeolithic or Mesolithic population can be noticed. On the other hand, among the artefacts were both fragments of polished axes (re-used as nuclei for the production of new artefacts) and flint from mining sites which can be associated with a (post)Neolithic occupation. From this perspective, an association with the Middle Bronze Age settlement cannot be excluded. In this region however, no investigation is done into the use of lithic artefacts by populations of the Bronze and Iron Ages.

### The Middle Bronze Age graves on the location Schootseweg

Evaluation trenches dug before the execution of deep levelling works on a parcel along the Schootseweg (parcels Sie B, 482 A-B and 483), revealed the circular and rectangular structures of a native Roman cemetery (1st – early 2nd century AD). During the more extensive rescue excavation, it became clear that this cemetery was built on a former Middle Bronze Age funerary site.

The latter comprised two circular ditches that possibly once surrounded a mound. The existence of a barrow cannot be proved, however, since the area was totally levelled during ages of later agricultural activities. The presence of Roman peripheral ditch structures crosscutting the former Middle Bronze Age ditch might indicate the absence of an original barrow at that time. One should also keep in mind that a small number of Middle Bronze Age flat graves have been found within the Meuse-Demer-Scheldt region (Gerritsen 2003, 121; Verwers and Van den Broeke 1985, 15; Berkvens *et al.* 2004, 73–75, 76–77). On the other hand, the Roman ditches seem to be clustered upon the older monument, suggesting that this monument was still visible in the Early Roman period. In that case, the presence of a (low) mound seems logical. Further study of the fills and depths of the Roman ditches might solve this discussion.

The circular ditch no. 1 was preserved entirely (Fig. 15.11). The partially podsolised peripheral structure measured 13 m in diameter. The ditch itself was still 0.60 to 0.80 m wide and had an average depth of 24 cm. On the western side, the ditch was interrupted. Within the peripheral ditch a grave pit (0.80 by 0.50 m) was present at about 2 m north of the centre. In the pit, the fragments of an urn (Fig. 15.12) – a barrel shaped vessel of the Drakenstein-type with fingernail impressions on the shoulder – with cremated human remains were found. The

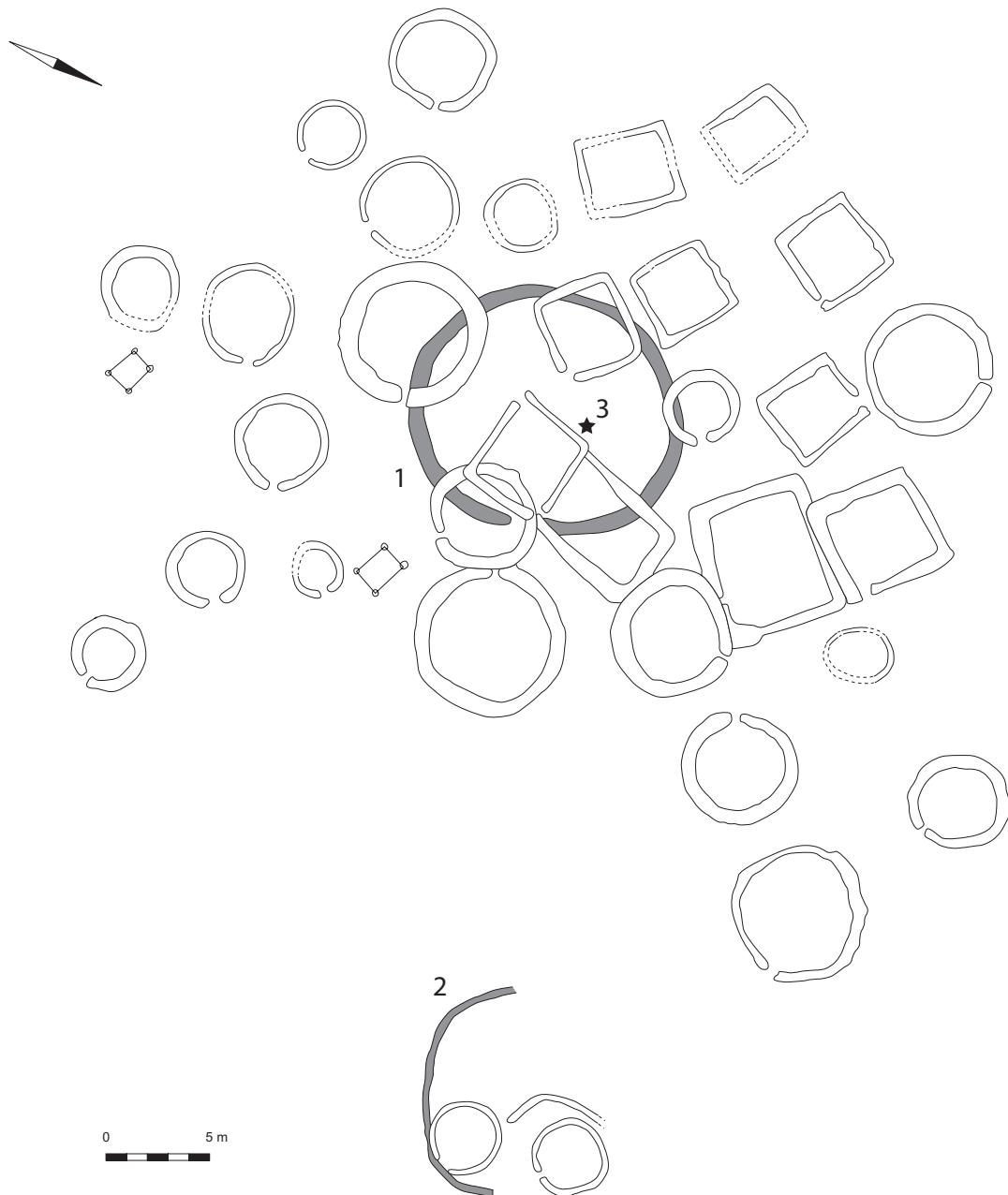


Fig. 15.13 Excavation plan of the native Roman cemetery with indication of the Middle Bronze Age ring ditches (1-2) and the location of the urn (3)

<sup>14</sup>C-date of the cremated bones (GrA-14285: table 1) spans the period of 1690 to 1520 BC. This date is surprisingly in accordance with the dating results for farmhouse 1 on the site Melkerijstraat. Secondary burials were not present but might have disappeared by ploughing activities.

The peripheral ditch no. 2 was only partially preserved and supposedly had a diameter of 10 m (Fig. 15.13). The ditch was partially podsolised and was still 0.30 m wide. The shallow depth (10 cm) suggests that the missing part of the ditch was disturbed by ploughing. Within this structure, neither a burial pit nor fragments of an urn were found.

## Organisation of the settlement

### *The structure of the houses*

Three of the four Middle Bronze Age ground plans correspond to the current ground plans of wooden byre houses excavated in Northwest Europe from Denmark to France (Fig. 15.3: 1–3 and figs 4–7): long three-aisled buildings (23 to 27.5 m long and 5 to 6 m wide) with rounded ends which suggest a hipped roof. There is a remarkable regularity in distances between the posts in the two rows of roof-bearing posts (c. 2.2 m, cf. Arnoldussen and Fokkens, this volume, Fig. 15.15). The buildings in

Context	Reference	BP-age	95,4 % BC
Grave 1	GrA-14285	3320 ± 30	1690–1520
Farm 1	KIA-21799	3265 ± 25	1620–1450
Pit H	KIA-21802	3050 ± 25	1400–1210
Pit I	KIA-21804	3010 ± 25	1380–1130
Pit F	KIA-21803	2955 ± 25	1290–1050
Pit A	KIA-21801	2915 ± 30	1260 (0.03) 1240 or 1220 (0.97) 1000
Structure 6	KIA-21805	2500 ± 25	750–510
Structure 6	KIA-21800	2430 ± 25	760 (0.31) 640 or 550 (0.69) 400

Table 15.1 Radiocarbon dates

Weelde can be compared to a series of buildings on the Pleistocene cover sand region in the southern Netherlands and the north of Belgium, which share structural similarities (Gerritsen 2003, 40–41; Theunissen 1999, 120–126).

In general, more remained of the features of the roof-bearing posts, indicating that these inner posts were dug down deeper. As noticed above, only the deepest features were preserved due to agricultural activities. One can suggest that only the inner two post rows of originally three-aisled houses are visible. In the density of postholes surrounding the houses 1–3, incomplete post rows can be distinguished that can be interpret as remnants of an outer row of wall posts. In that case, most buildings would have been of the 'half-portal' type which means that the rafters of the roof, each one supported by one pair of posts, extended from the side wall to the centre of the house, creating half frames. In building 1, however, the hypothetical wall posts seem to be standing in a zigzag position opposite the roof-bearing posts (Fig. 15.4). This type of construction was also discovered on other Middle Bronze Age sites.<sup>1</sup>

On the other hand, taking full account of these hypothetical wall posts, the houses 1–3 would have a total width of more than 9 m. This measure is very unusual among the known Bronze Age buildings.

The average wideness of 4.3 m between the preserved post rows of buildings 1–3 can even suggest houses with only two roof-bearing post rows and with walls, consisting of a shallow construction of stakes, posts or sods, which are not preserved.

The scarce additional posts in the middle of the houses were not dug down deeply. Presumably, these were not roof-bearing posts, and possibly supported some inner construction (e.g. a loft).

The orientations at Weelde (northwest/southeast and north-northeast/south-southwest) correspond to the predominant orientations elsewhere (Theunissen 1999, 123). The longitudinal house tradition with a bipartite division suggests a byre-house tradition where people and cattle were living under the same roof (Fokkens 2003, 12 ff.; Gerritsen 2003, 67). The living quarters are commonly reconstructed in the northern part of the buildings and the byre in the southern part, but at Weelde conclusive evidence is lacking. With the exception of a single indication of an

entrance in the southern short side of farm 2, it was impossible to define the position of the entrances.

The hypothetical building 4 (Fig. 15.3: 4 and Fig. 15.8) seems to have had one rectangular and one rounded end. This type of building has also been found elsewhere in the southern Netherlands and might date from the Middle Bronze Age to the Early Iron Age, since similar structures occur in Middle Bronze Age as well as in Early Iron Age settlements.<sup>2</sup> Based on the vague outline of the features, building 4 is dated to the Middle Bronze Age. Conversely, the short length of structure 4 could be an argument for a younger date.

Outbuilding 5 and the internal trapezoid structure 6, form part of an Early Iron Age occupation phase (Fig. 15.3: 5–6). The discolouration of the features is less vague and the ground plan of 5 (Fig. 15.9) corresponds to similar types of Early Iron Age outbuildings, for example those at Loonop-Zand (NL; Roymans and Hiddink 1991, 120–121; Fig. 15.13: B). Based on the <sup>14</sup>C-dates of samples of charcoal from the postholes of structure 6 (Fig. 15.9), the latter can also be dated to the Early Iron Age.

### Farmyard

The observed overlap of the house plans indicate that at Weelde a maximum of two farms could have been occupied at the same time. On the possible farmyards some pits were found. Based on the bell shaped form at least one of them can be interpret as a silo. It is a pity that at Weelde, due to soil acidity, no organic remains were preserved, which makes palynological studies impossible. Certain pits (among them the silo) could have been located within the building, but their association is unclear.

Outside the buildings, some burned patches could be identified as field ovens or cooking pits, possibly constructed away from the wooden buildings for risk of fire.

The Middle Bronze Age farmyard at Weelde did not yield the following elements:

- ground plans of secondary structures such as four-posters or six-posters: presumably such storage structures were present but their soil marks were badly preserved (due to the former mentioned lixiviation) and therefore not discerned;

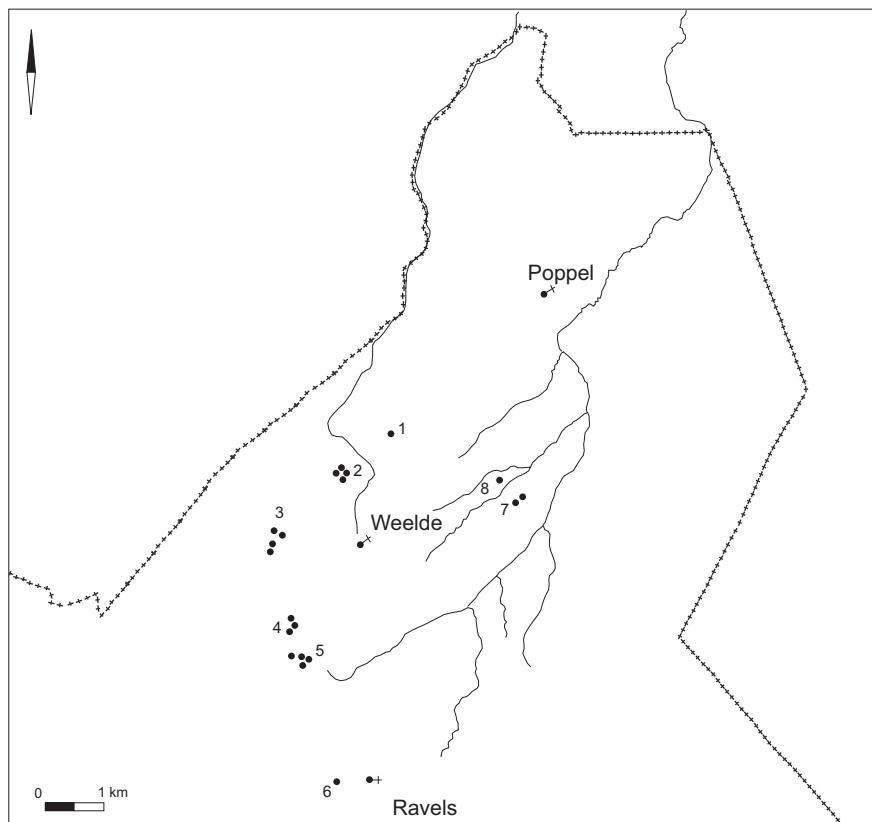


Fig. 15.14 Location of the earlier excavated Middle Bronze Age barrows and settlement.

Legend: 1: Vlasroot; 2: Litse Heide; 3: Hoogeindse Bergen; 4: Vliegveld (not yet investigated); 5: Groenendalsche Hoef; 6: Wetsberg; 7: Schootseweg; 8: Melkerijstraat

- ditches;
- fences of stakes: fence systems are seldom discerned in the southern and eastern Netherlands cover sand region in contrast to the northern and central Netherlands. The scarce examples in the sand region are Vasse (NL; Harsema 1997, 90) and Engelen (NL; Dauztenberg *et al.* 2002). Possibly the bad preservation of shallow features is the reason for this absence;
- wells: Middle Bronze Age wells in the MDS-region are often found in an isolated position in marshy depressions at a small distance of the settlements, as was the case in Kontich (B; Annaert *et al.* 2004). Besides, two brooklets were present at walking distance from the settlement. Only at Oss (NL) wells were found on the farmstead. The local high ground water table and the large distance to natural water (Meuse) is mentioned as an explanation for this (Theunissen 1999, 125).

### Chronology

The intersection of the ground plans and the diversity of  $^{14}\text{C}$ - datings allow an attempt at discerning phases of occupation for both cemetery and settlement. For the Middle Bronze Age at least three phases of use can be suggested. The grave

within ring ditch 1 at the Schootseweg cemetery clearly represents the oldest phase. Theoretically, this grave might have been the interment of the founder of the settlement who could have constructed farmhouse 1. On the other hand the uncertain origin of the charcoal in the sampled posthole of this farmhouse makes this proposition very unstable. One should be aware of the terminus post quem significance of the radiocarbon date. From this point of view the grave may have been older than the settlement. Recent studies on the dating of Bronze Age barrows and houses seem to demonstrate that most of the Middle Bronze Age Barrows are older than the known Middle Bronze Age settlements associated with them (Bourgeois and Arnoldussen 2006). The dating of farmhouse 1 (Fig. 15.3: 1) thus remains uncertain.

Pits H and I (Fig. 15.3: H-I) can be placed in a contemporaneous phase while pits A en F (Fig. 15.3: A and F) are younger. Since the exact position of the house walls remains uncertain, it is impossible to attribute the pits to a building

The question is how buildings 1, 2, 3 and 4 (Fig. 15.3: 1-4) should be fitted into the chronology of this settlement. Building 1 has the same orientation as building 2, which can be an indication of a contemporaneous (oldest?) occupation of both houses. Based on the same assumption, building 4 – with the same orientation as building 3 – can be situated

in another (younger) phase. Ground plan 4 suggests a possibly younger type and this interpretation is strengthened by the nearby presence of the younger pit A. Since the area immediately southwards was completely disturbed, it is unknown if this younger occupation extended in this direction.

Summarizing, the radiocarbon dates demonstrate a continuous occupation during the Middle Bronze Age, in the immediate surroundings of a probably older Middle Bronze Age cemetery. The same orientation of buildings 1 and 2, and of buildings 3 and 4 could suggest a contemporaneous use of a pair of farms. The reconstruction of a single farmhouse in consecutive phases is however another possibility.

Finally, the outbuildings 5 and 6 (Fig. 15.3: 5–6) with <sup>14</sup>C-dates in the Early Iron Age testify of a younger reoccupation of the same area in the Iron Age. As this rescue excavation was confined to a rather limited surface, it was impossible to locate the main building(s) of this youngest settlement.

### ***The settlement and cemetery placed in a micro-region***

The micro-region of Ravels-Weelde-Poppel has revealed a lot of archaeological relics from various prehistoric periods (Van Impe and Annaert 1985, 28–34; Verbeek 1996; 1997; 1998). Mostly it concerns well-preserved barrows on the sand dune complexes in the uncultivated heath lands where since prehistoric times the monumental relicts remained visible. During the 19th and early 20th century, clusters of Early and Middle Bronze Age barrows were ‘investigated’ on the Hoogeindse Bergen, Vlasroot, Groenendaalse Hoef, Litse Heide, Wetsberg (Fig. 15.14; Van Impe and Beex 1977; Beex 1959; Stroobant 1910; 1927; 1930, 372–374, 389–391). Settlement traces, however, were until now never uncovered. On the never cultivated heath lands, only the monumental barrow monuments have visibly survived the ages. Rescue excavations on cultivated land, now also reveal remnants of settlements, flat graves and/or levelled grave mounds. In the light of the results of the recent investigations, which located a cluster of graves as well as a contemporaneous or slightly younger settlement at a distance of hardly 500 m, the previously investigated barrows in the same region can perhaps be better understood. In earlier times, it has been suggested that the Bronze Age graves and barrows were clustered on the infertile sandy dune complexes while the settlements were situated on the more fertile arable grounds (Van Impe and Annaert 1985, 34–39). The recently discovered sites Melkerijstraat and Schootseweg, both on arable grounds, contradict these former theories. The question is where the people, who were buried in the several barrow clusters, practiced their daily live activities. The presence of graves indicates that people were living in the surroundings. The former investigations of barrows (cf. Weelde-Hoogeindse Bergen; Van Impe and Beex 1977) and the present rescue

operations in the Belgian Campine region did not have the purpose to investigate the complete landscape in the surroundings of the sites. As long as no scientific projects can be executed on an entire micro-region, only a few new – mostly scattered – data can be obtained. Generally this limited information only amplifies or affirms scientific theses based on extensive investigations elsewhere. On the other hand, not only agricultural activities but also the transience of archaeological features poses a problem in modern archaeology, especially when this factor is neglected in the process of land or nature consolidation projects. The settlement Melkerijstraat would have been better understood if house plans were already recognised during fieldwork.

Bearing in mind the limited character of the excavations, both cemetery (Schootseweg) and settlement (Melkerijstraat) contribute to the study of Bronze Age communities in the MDS-region. Firstly, the radiocarbon results of the sampled features in the settlement Melkerijstraat, suggest a continuous occupation during several generations on the same sand ridge. It is even possible that at least two farms were contemporaneous in use. This information affirms Fokkens’ theory that the idea of ‘unsettled’ farmyards has to be seen from another viewpoint (Fokkens 2003, 18 ff.).

Secondly, the short distance between burial ground (Schootseweg) and settlement (Melkerijstraat), indicates a relation between both sites, even if the grave within ring ditch 1 is not contemporaneous to farm 1 on the settlement. The lack of settlement traces in the immediate surroundings of the cemetery seems to affirm the thesis that the Middle Bronze Age landscape was territorially ordered (Gerritsen 2003, 190): the land of the death was carefully separated from the land of the living. At Weelde cemetery and settlement occupied a different sand ridge, separated by a brooklet. Yet, cemeteries seem to have been a special attraction pool: probably the settlement was slightly younger and founded in the vicinity of the nearby, existing cemetery. Also in later times the influence of ancestors must have been important in the claiming of land, as is illustrated at Weelde where in the 1st century AD a native Roman cemetery was built on top of the former Middle Bronze Age barrow’s ring ditches. The remarkable radial way the 32 new grave structures cluster from the centre of the Bronze Age grave 1 to the four winds, might indicate a claim of this ancestral ground as collective property by the new population.

### **Notes**

1 Blerick (NL; Theunissen 1999, 122 and Fig. 15.4.3); Vasse (NL; Harsema 1997, 90 and Fig. 15.4); Eigenblok (NL; Hielkema *et al.* 2002, 101, Fig. 15.3.9, 119 and Fig. 15.3.18) and Breda-Huifakker (NL; Berkvens *et al.* 2004, 63 and Fig. 15.4.7).

2 E.g. Nijnsel (NL; Beex and Hulst 1968, 122–124, Fig. 15.5), Loon-op-Zand (NL; Roymans and Hiddink 1991, 114–115,

Fig. 15.4), Lienden (NL; Schoneveld and Kranendonk 2002, 58–59, house D) and Eigenblok (NL; Hielkema *et al.* 2002, 149, Fig. 15.3.36) are all dated in the Middle Bronze Age. Donk (B; Van Impe 1991, 186–188 and figs 4: 25 and 6), St. Gillis-Waas and St. Denijs-Westerm (B; Bourgeois and Cherretté 2000, 62 and Fig. 15.22: A–B) are dated to the Early Iron Age.

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